British Columbia Reproductive Care Program

British Columbia Perinatal Database Registry
Annual Report 2003

Working to Optimize
Fetal, Maternal and Infant Health in British Columbia

ACKNOWLEDGEMENTS

The Ministry of Health (Hospital Programs) and the British Columbia Medical Association (BCMA) under the auspices of the Continuing Advisory Subcommittee on Perinatal Care initiated the British Columbia Reproductive Care Program (BCRCP) in June 1988. A small but dedicated group of individuals, committed to ensuring that information on perinatal health was made available to a wide audience of professionals and planners, founded the British Columbia Perinatal Database Registry (BCPDR) in 1993. Notably, these included Dr. Sidney Effer, Dr. William J. Ehman, Dr. Margaret Pendray, Mr. Peter Hayles and Dr. Alan Thomson with the support of the BC Ministry of Health.

The BCRCP is pleased to present the first British Columbia Perinatal Database Registry Annual Report and wishes to recognise all the above mentioned for their vision and dedication.

The BCRCP wishes to thank the members of the 2003 Reports Development Committee for their diligent work in bringing this task to fruition.

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The committee gratefully acknowledges the assistance of health records staff at the participating hospitals, as well as the physicians and nurses who generated the records. The program also wishes to acknowledge the BCPDR data analysts for their work in data collection, conversion, extraction and analysis. Last, but by no means least, thanks are due to Ruth Milner, who provided the epidemiological analysis for the In Focus section.

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HIGHLIGHTS AND EXECUTIVE SUMMARY

This first Annual Report includes perinatal data from two fiscal years (April 1 to March 31) 2001/2002 and 2000/2001. Where possible, data from both fiscal years are reported but for the Neonatal/Perinatal/Infant Mortality reports, only data from the year 2000/2001 are available.

Only singleton pregnancies, deliveries and births are included. The data provide evidence regarding issues pertaining to the care of mothers and newborns in British Columbia. BC residents who delivered out of province were not captured.

Some of the key findings of this report are:

- Teen birth rates are highest in the Northeast, Northern Vancouver Island and East Kootenay HSDAs at 11.3%, 9.6% and 10.6% respectively for 2001/2002.
- The maternal smoking rate decreased in 2001/2002 and remains low relative to Quebec and the Atlantic Provinces (Canadian Perinatal Health Report, 2000).
- The provincial percentage of mothers breastfeeding (partial or exclusive) at discharge is high, at 91.9% in 2001/2002.
- Among the health authorities, there was no consistency of higher or lower rates of induction, when compared with the provincial level of 22.5% in 2001/2002.
- In 2001/2002, the Vancouver Island HA rate of electronic fetal monitoring in labour was well below the provincial average (81.4%) at 71.1%, with the Northern Vancouver Island HSDA reporting the lowest rate at 55.4%.
- The episiotomy rate has risen slightly in most health authorities, the exception being the Vancouver Island HA.
- The caesarean section rate has risen over the two years and remains higher than the national rate of 21%.
- Postpartum length of stay for both vaginal birth and caesarean section is lowest in the Fraser HA.
- In 2001/2002, the provincial low birth weight rate (which includes very low birth weight) was 4.0%, with very little variation amongst the health authorities.
- There is considerable difference in the stillbirth rate between health service delivery areas, with the lowest rate in the Northern Interior (1.9 per 1,000 births) and the highest rate in the Northeast (9.8 per 1,000 births), although both HSDAs are within the same health authority.

The following are highlights of the detailed discussion on induction of labour, presented in the In Focus section of this report:

- Overall induction rates in BC were 22.5% in 2001/2002 and 21.2% in 2000/2001.
- Excluding the PHSA, induction rates were consistent across the other health authorities.
- The Northern HA had the lowest induction rates overall in 2001/2002 at 20.4%.
- The induction rate for nullipara was above the provincial average at 26.8% in 2001/2002 and 25.3% in 2000/2001. Approximately 1 in 4 nulliparous pregnancies are being induced.
- The most common reason cited for induction was post-dates pregnancy.
- The most common reason for failed induction (for post-dates pregnancy) leading to C/Section was dystocia/CPD.
- Amongst the sub-group of nullipara, a finding of dystocia/CPD accounted for close to one quarter of the C/Sections.

It should be noted that the data described in this report only includes singleton pregnancies, deliveries and births.

BC women who deliver in Alberta hospitals are not captured in the BC Perinatal Database Registry. Therefore data from high outflow communities bordering Alberta may be skewed.

Definitions for terms used throughout the report can be found on starting on page 48.

BACKGROUND

The Ministry of Health (Hospital Programs) and the British Columbia Medical Association (BCMA) under the auspices of the Continuing Advisory Subcommittee on Perinatal Care (CASC) initiated the British Columbia Reproductive Care Program (BCRCP) in June 1988. The BCRCP is overseen by a Provincial Perinatal Steering Committee and has representation from the Ministry of Health and Ministry of Children and Family Development (MOH, MCFD), the Provincial Health Services Authority (PHSA), Children's and Women's Health Centre of BC, health care providers, health authorities and academic organisations.

One of the mandates of the BCRCP is "the collection and analysis of data to evaluate perinatal outcomes, care processes and resources via a province-wide computerized database". This mandate led to the development of the British Columbia Perinatal Database Registry (BCPDR), with its stated mission to collect, maintain, analyse and disseminate comprehensive, province-wide perinatal data for the purposes of monitoring and improving perinatal care. Rollout of the Registry began in 1994, with collection of data from a small number of hospital sites. Participation increased every year, resulting in full provincial data collection commencing April 1, 2000. The BCPDR is a relational database containing over 300 fields, and now with complete provincial data, it is a valuable source of perinatal information.

Data Collection

The BCPDR consists of data from obstetrical facilities and births occurring at home attended by BC Registered Midwives. Participation in the registry is voluntary and currently accounts for approximately 99% of births in the Province (The 1% covers births that are not reported/recorded).

BC women who deliver in Alberta hospitals are not captured in the BC Perinatal Database Registry. Therefore data from high outflow communities bordering Alberta may be skewed.

The perinatal data presented in this report are collected from facilities throughout the province and imported into the central BC Perinatal Database Registry. Data from the Canadian Institute for Health Information (CIHI) and matched files from the British Columbia Vital Statistics Agency complement the data elements. The 2000/2001 deaths represented in this report consist of singleton pregnancy deaths identified by the BCPDR supplemented by deaths identified by Vital Statistics records, in order to provide complete mortality data for babies up to one year of age.

INTRODUCTION

This first BCPDR Annual Report describes the current state of perinatal health in British Columbia (BC) and will serve as the baseline to monitor future trends and changes for the selected indicators. These indicators have been chosen by the Reports Development Committee because they are clinically relevant and lend themselves to analysis that may suggest changes in care delivery. It must be remembered that this report is only one source of data to monitor trends and guide policy and clinical practice.

Definitions for terms used throughout the report can be found on page 48.

Methodological Issues:

The first Annual Report includes perinatal data from two fiscal years (April 1 to March 31) 2001/2002 and 2000/2001. Where possible, data for both fiscal years are reported, but for the Neonatal/Perinatal/Infant Mortality reports, only data from the year 2000/2001 are available. **Only singleton pregnancies, deliveries and births are included.** Health Service Delivery Areas (HSDAs) and Health Authorities (HAs) are based on either place of delivery (i.e. where the birth occurs) or place of residence (i.e. where the mother lives). Data limitations or methodological issues concerning the data source are noted in the text that accompanies each indicator.

The data contain only linked mothers and newborns for each fiscal year. The year in which this data set is contained is dependent on when the discharge occurs. If the data for mother and newborn are from different fiscal years then the data are reported in the fiscal year in which the last individual is discharged. See the following examples:

- If a woman gives birth March 28, 2002 and is discharged March 31, 2002 and the newborn is also discharged March 31, 2002, then their information is contained in the 2001/2002 fiscal year data.
- If a woman gives birth March 28, 2002 and is discharged March 31, 2002 and the newborn is discharged April 4, 2002, then the data for both mother and newborn will be contained in the fiscal year 2002/2003 data set, not the 2001/2002 data set.

The Annual Report is divided into:

Section I
Demographics and Human Resource Indicators

- Population of Women in BC Aged 15 - 54, 2002 and 2001
- Changes in Birth Rate and Fertility Rate in BC, 1952 - 2002
- Care Provider for Delivery by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

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Section IV
In Focus

The In Focus section deals with a specific topic in greater detail than in Section I. The criteria for selecting an In Focus topic are that it deals with a clinically interesting question, (in part this is determined by the number and type of requests received by BCRCP) and gives expanded details on selected issues. Strategies employed in the selection of a topic include:

- examining the number of requests received by BCRCP to determine if there exists a critical mass for a topic
- identifying a recent issue in the media (either public or research) that could be enhanced with some analysis of data from BCRCP

For this issue of the Annual Report, the In Focus question deals with induction of labour stratified by parity:

- Rate of induction of nullipara and parity ≥ 1 by mode of delivery (Vaginal vs. C/Section)
- Rate of induction of nullipara and parity ≥ 1 by C/Section by primary reason for C/Section

Section V
References and Appendices

Reference is made throughout the document to BCRCP resources, e.g. clinical practice guidelines, for select indicators. These references can be accessed on the BCRCP web site at <http://www.rcp.gov.bc.ca >.

SECTION I

DEMOGRAPHICS AND HUMAN RESOURCE INDICATORS

SECTION I
DEMOGRAPHICS AND HUMAN RESOURCE INDICATORS

Population of Women in BC Aged 15 - 54, 2002 and 2001

According to Statistics Canada, in 2002 the female population aged 15 - 54 in BC was 1,224,879 or 49.8% of the total population of the same age group. There was only a very slight increase in the population count from 2001, which was 1,216,706 or 49.7% of the total population of the same age group.

Table 1

Population of Women in BC Aged 15 - 54, 2002 and 2001

	2002		2001	
AGE	#	%	#	%
15-19	134,102	10.9	133,143	10.9
20-24	139,454	11.4	135,494	11.1
25-29	134,543	11.0	135,212	11.1
30-34	153,087	12.5	153,146	12.6
35-39	169,633	13.8	173,471	14.3
40-44	177,089	14.6	175,985	14.5
45-49	168,249	13.7	163,882	13.5
50-54	148,722	12.1	146,373	12.0
Total Females Population Aged 15 - 54	1,224,879	100.0	1,216,706	100.0
Total Population Aged 15 - 54	2,458,738		2,246,384	

Population counts are based on calendar year
Source: Statistics Canada
Historical Population Counts from 1971 - 2002
Figures are as of July 1 of the year stated

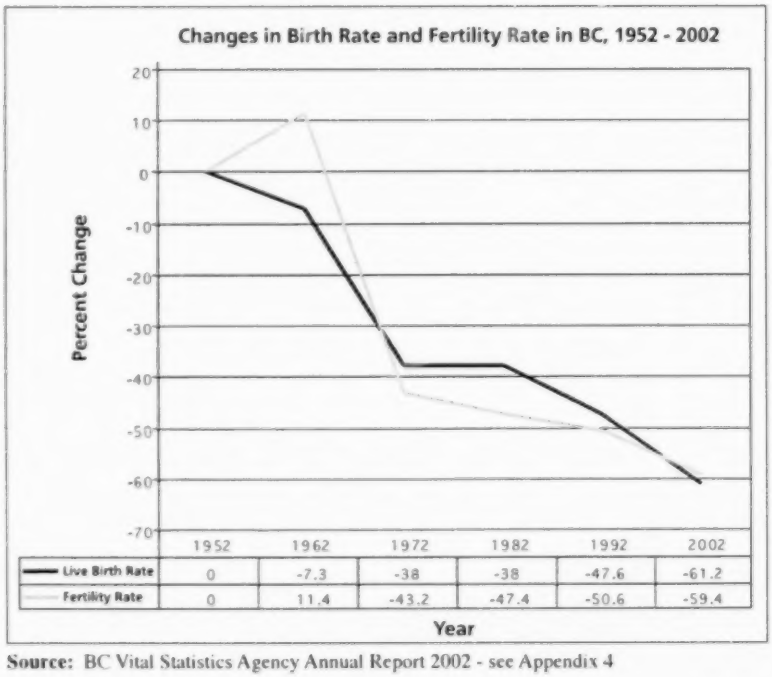
Changes in Birth Rate and Fertility Rate in BC, 1952 - 2002

The proportion of women delaying childbirth has increased in Canada in recent years (Canadian Perinatal Health Report, 2000). Antepartum complications associated with this delay include pre-eclampsia, placenta previa (associated with antenatal hospital admissions) and chronic medical conditions; intrapartum complications may include malpresentations and operative delivery (Prysak & Lorenz, 1995). Other studies have shown that infants born to older mothers are at increased risk for pre-term birth and intrauterine growth restriction (Canadian Perinatal Health Report, 2000).

Along with this delay, the actual rate of live births has shown a steady downward trend over the last five decades. Fertility rates have closely matched this decline, as shown in the following time-trend analysis.

Live birth rates and fertility rates have been extrapolated using 1952 as the baseline year of adjustment and 2002 as the ending year for the analysis. In 1952, the fertility rate per thousand and birth rate per thousand was 3,327 and 24.8, respectively. In 2002, the fertility rate per thousand and birth rate per thousand was 1,351 and 9.6, respectively. As observed in Figure 1, both fertility rates and births rates have decreased by 59.4% and 61.2% since 1952.

Figure 1



Source: BC Vital Statistics Agency Annual Report 2002 - see Appendix 4

Care Provider for Delivery by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 2)

Analysis of this report is by place of delivery because in most cases it is the practice of care at an institution that determines who is the care provider for delivery.

In 2001/2002, 47.8% of parturients were attended by an obstetrician and 44.6% were attended by a family physician. Midwives and nurses were each care providers for delivery in approximately 3% of the cases, with 1.0% attributed to "other" care providers. In 2000/2001, the care provider for delivery was evenly distributed between family physicians and obstetricians at 46.0% and 46.3% respectively.

The overall rate and number of deliveries by family physicians was down in 2001/2002 at 44.6% (17,492 births) from 46.0% (18,097 births) in 2000/2001.

Within the health authorities for 2001/2002, family physicians performed the majority of deliveries in the Interior (62.2%) and the Northern HA (70.8%). Obstetricians performed the majority of deliveries in PHSA (71.2%). Obstetricians also performed the majority of deliveries in the Vancouver Coastal HA (52.9%). In 98.9% of occurrences, home deliveries were attended by midwives. While midwives performed deliveries in all health authorities, the highest percentage was in the Vancouver Island HA where they were responsible for delivering 6.0% of the births. Fraser South HSDA had the highest number of nurse deliveries at 6.9% in 2001/2002 and 8.8% in 2000/2001.

Figure 2

	FHA	IHA	NHA	VCHA	VIHA	PHSA	HB	Province
Family Physician (00/01)	43.6	62.3	70.0	42.5	53.1	24.4	0.3	46.0
Family Physician (01/02)	42.2	62.2	70.8	40.9	47.4	24.8	0.0	44.6
Midwife (00/01)	1.4	0.8	0.4	2.2	4.5	1.4	97.8	2.7
Midwife (01/02)	1.9	1.0	0.6	2.7	6.0	1.6	98.9	3.4
Nurse (00/01)	5.9	3.9	4.6	2.8	1.8	2.1	0.3	3.8
Nurse (01/02)	4.6	2.8	4.1	2.6	2.1	1.8	0.0	3.2
Obstetrician (00/01)	47.7	31.0	23.4	51.0	40.2	71.1	0.0	46.3
Obstetrician (01/02)	50.4	31.8	23.1	52.9	44.2	71.2	0.0	47.8

Health Authority (HA) Legend

FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island
PHSA	Provincial Health Services Authority
HB	Home Births

Table 2 Care Provider for Delivery by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002

		Family Physician		Midwife		Nurse		Obstetrician		Other		Unknown		Total	
HA	HSDA	#	%	#	%	#	%	#	%	#	%	#	%	#	%
FHA	FE	1619	64.5	26	1.0	112	4.5	746	29.7	6	0.2	1	0.0	2510	100.0
	FN	2481	49.4	131	2.6	108	2.2	2210	44.0	92	1.8	0	0.0	5022	100.0
	FS	1391	25.4	86	1.6	379	6.9	3592	65.7	20	0.4	0	0.0	5468	100.0
Total		**5491**	**42.2**	**243**	**1.9**	**599**	**4.6**	**6548**	**50.4**	**118**	**0.9**	**1**	**0.0**	**13000**	**100.0**
IHA	EK	396	69.5	11	1.9	30	5.3	91	16.0	42	7.4	0	0.0	570	100.0
	KB	322	61.3	29	5.5	12	2.3	158	30.1	4	0.8	0	0.0	525	100.0
	OK	1451	57.4	15	0.6	74	2.9	983	38.9	5	0.2	0	0.0	2528	100.0
	TC	1214	66.9	0	0.0	36	2.0	498	27.4	68	3.7	0	0.0	1816	100.0
Total		**3383**	**62.2**	**55**	**1.0**	**152**	**2.8**	**1730**	**31.8**	**119**	**2.2**	**0**	**0.0**	**5439**	**100.0**
NHA	NE	688	80.3	0	0.0	25	2.9	138	16.1	6	0.7	0	0.0	857	100.0
	NI	996	65.6	19	1.3	73	4.8	396	26.1	34	2.2	0	0.0	1518	100.0
	NW	662	70.5	0	0.0	37	3.9	232	24.7	7	0.7	1	0.1	939	100.0
Total		**2346**	**70.8**	**19**	**0.6**	**135**	**4.1**	**766**	**23.1**	**47**	**1.4**	**1**	**0.0**	**3314**	**100.0**
VCHA	NSCG	1020	55.7	57	3.1	64	3.5	649	35.4	42	2.3	0	0.0	1832	100.0
	RICH	588	40.8	1	0.1	51	3.5	798	55.4	3	0.2	0	0.0	1441	100.0
	VANC	437	25.2	75	4.3	15	0.9	1199	69.3	5	0.3	0	0.0	1731	100.0
Total		**2045**	**40.9**	**133**	**2.7**	**130**	**2.6**	**2646**	**52.9**	**50**	**1.0**	**0**	**0.0**	**5004**	**100.0**
VIHA	CVI	598	32.1	68	3.7	45	2.4	1143	61.4	5	0.3	4	0.2	1863	100.0
	NVI	203	46.8	31	7.1	7	1.6	193	44.5	0	0.0	0	0.0	434	100.0
	SVI	1814	56.4	230	7.2	66	2.1	1099	34.2	7	0.2	0	0.0	3216	100.0
Total		**2615**	**47.4**	**329**	**6.0**	**118**	**2.1**	**2435**	**44.2**	**12**	**0.2**	**4**	**0.1**	**5513**	**100.0**
PHSA		**1612**	**24.8**	**103**	**1.6**	**116**	**1.8**	**4637**	**71.2**	**43**	**0.7**	**0**	**0.0**	**6511**	**100.0**
HB		**0**	**0.0**	**450**	**98.9**	**0**	**0.0**	**0**	**0.0**	**5**	**1.1**	**0**	**0.0**	**455**	**100.0**
Province		**17492**	**44.6**	**1332**	**3.4**	**1250**	**3.2**	**18762**	**47.8**	**394**	**1.0**	**5**	**0.0**	**39236**	**100.0**

2000/2001

		Family Physician		Midwife		Nurse		Obstetrician		Other		Unknown		Total	
HA	HSDA	#	%	#	%	#	%	#	%	#	%	#	%	#	%
FHA	FE	1585	65.3	24	1.0	114	4.7	696	28.7	9	0.4	0	0.0	2428	100.0
	FN	2547	50.4	85	1.7	176	3.5	2098	41.5	144	2.9	0	0.0	5050	100.0
	FS	1473	27.4	77	1.4	473	8.8	3338	62.1	16	0.3	2	0.0	5379	100.0
Total		**5605**	**43.6**	**186**	**1.4**	**763**	**5.9**	**6132**	**47.7**	**169**	**1.3**	**2**	**0.0**	**12857**	**100.0**
IHA	EK	458	74.0	0	0.0	25	4.0	110	17.8	26	4.2	0	0.0	619	100.0
	KB	333	62.0	27	5.0	14	2.6	148	27.6	15	2.8	0	0.0	537	100.0
	OK	1521	58.6	20	0.8	87	3.4	951	36.7	15	0.6	0	0.0	2594	100.0
	TC	1145	63.6	0	0.0	92	5.1	509	28.3	53	2.9	0	0.0	1799	100.0
Total		**3457**	**62.3**	**47**	**0.8**	**218**	**3.9**	**1718**	**31.0**	**109**	**2.0**	**0**	**0.0**	**5549**	**100.0**
NHA	NE	621	75.4	0	0.0	19	2.3	180	21.8	4	0.5	0	0.0	824	100.0
	NI	1040	66.1	13	0.8	103	6.5	382	24.3	34	2.2	1	0.1	1573	100.0
	NW	704	71.8	1	0.1	33	3.4	230	23.4	12	1.2	1	0.1	981	100.0
Total		**2365**	**70.0**	**14**	**0.4**	**155**	**4.6**	**792**	**23.4**	**50**	**1.5**	**2**	**0.1**	**3378**	**100.0**
VCHA	NSCG	1182	58.5	48	2.4	79	3.9	657	32.5	52	2.6	1	0.0	2019	100.0
	RICH	651	46.5	0	0.0	39	2.8	706	50.5	3	0.2	0	0.0	1399	100.0
	VANC	329	19.8	63	3.8	24	1.4	1229	73.8	17	1.0	3	0.2	1665	100.0
Total		**2162**	**42.5**	**111**	**2.2**	**142**	**2.8**	**2592**	**51.0**	**72**	**1.4**	**4**	**0.1**	**5083**	**100.0**
VIHA	CVI	685	39.4	55	3.2	36	2.1	958	55.1	4	0.2	1	0.1	1739	100.0
	NVI	233	56.0	29	7.0	3	0.7	151	36.3	0	0.0	0	0.0	416	100.0
	SVI	1939	60.2	158	4.9	56	1.7	1052	32.7	16	0.5	0	0.0	3221	100.0
Total		**2857**	**53.1**	**242**	**4.5**	**95**	**1.8**	**2161**	**40.2**	**20**	**0.4**	**1**	**0.0**	**5376**	**100.0**
PHSA		**1650**	**24.4**	**95**	**1.4**	**140**	**2.1**	**4818**	**71.1**	**70**	**1.0**	**0**	**0.0**	**6773**	**100.0**
HB		**1**	**0.3**	**354**	**97.8**	**1**	**0.3**	**0**	**0.0**	**6**	**1.7**	**0**	**0.0**	**362**	**100.0**
Province		**18097**	**46.0**	**1049**	**2.7**	**1514**	**3.8**	**18213**	**46.3**	**496**	**1.3**	**9**	**0.0**	**39378**	**100.0**

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
HB	Home Births

Health Service Delivery Area (HSDA)

FE	East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

SECTION II

MATERNAL INDICATORS

SECTION II
MATERNAL INDICATORS

Teen Birth Rate by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 3)

It is a challenge to calculate teen pregnancy rates, as the number of miscarriages is often unknown and in British Columbia there is no easy way of linking abortion information with pregnancy/birth information. What is known is that the Canadian teen birth rates in the 15 - 19 year age group have declined year after year from a peak of 5.6% (of all teen births in Canada) in 1997.

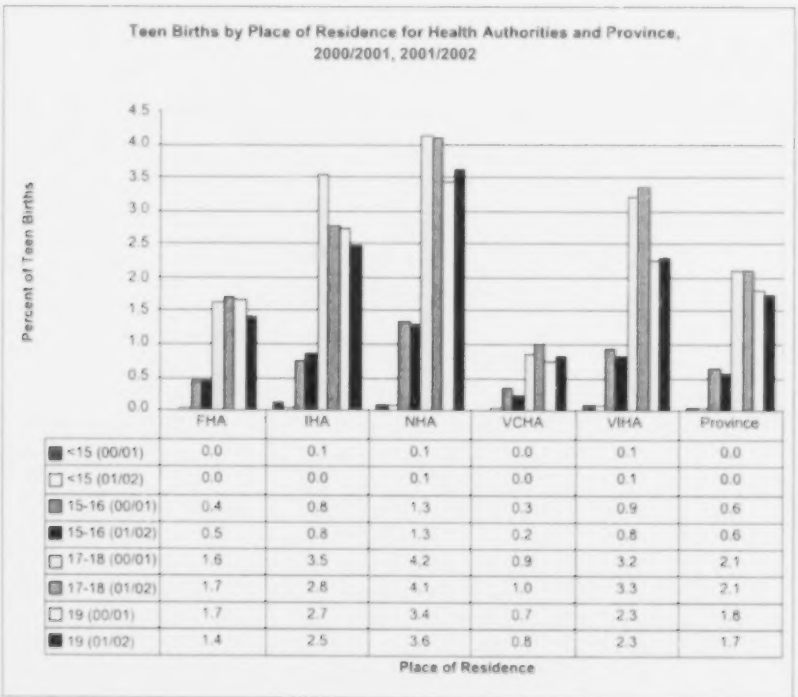
Typically, teen pregnancies are characterised by delayed entry into prenatal care and lower rates of prenatal care. Tobacco, alcohol and other substance use is reported to be higher among pregnant adolescents (Fraser, Brochert & Ward, 1995). In addition, their babies are at increased risk of prematurity and growth restriction (ibid). Information on teen pregnancy rates or teen birth rates is an important public heath indicator, as Canadian studies have shown that a combination of reproductive health information and the availability of contraceptive counseling can substantially reduce teen pregnancy, abortions and births (Fraser et al, 1995).

The calculation of the percentage of teen births for this report is based on the place of residence of the mother. In 2001/2002, 1,758 teenage girls (ages 13 - 19 years) gave birth in BC, a slight decrease from 2000/2001 at 1,822 births. The highest percentage of births for both years was found among the 17 - 18 year old age group, just over 2% of the provincial births for each year. Not surprisingly, the lowest percentage of births was found among those girls under the age of 15 years, at less than one percent. This corresponds to the rate for Canada as a whole (Canadian Perinatal Health Report, 2000).

Within the health authorities, in 2001/2002, the Northwest HSDA had the highest percentage of teen births at 11.3%, followed by East Kootenay at 10.6% and North Vancouver Island at 9.6%. As with the previous year, Richmond at 1.5% and Vancouver at 1.9% had the lowest percentage of births to teenagers. In 2000/2001, the Northern Vancouver Island HSDA had the highest percentage of teen births at 11.6%, followed by East Kootenay at 11.4% and the Northeast at 10.2%. Richmond had the lowest percentage of teen births at 1.5%, followed by Vancouver at 1.7%.

The BCPDR does not collect specific data on ethnicity. However, one explanation for the higher percentage of teen births in the Northern and Northern Vancouver Island HSDAs may be the clustering of Aboriginal communities in these areas. Aboriginal youth between 15 and 19 have a fertility rate more than four times that of the non-Aboriginal community (BC Vital Statistics Agency, 2002). As many teen pregnancies are unintended and as birth outcomes are generally poorer among teen mothers, it is important that attempts be made to reduce the teen pregnancy rate, particularly among the aboriginal groups (Miller, Lesser & Reed, 1996).

Figure 3



	FHA	IHA	NHA	VCHA	VIHA	Province
<15 (00/01)	0.0	0.1	0.1	0.0	0.1	0.0
<15 (01/02)	0.0	0.0	0.1	0.0	0.1	0.0
15-16 (00/01)	0.4	0.8	1.3	0.3	0.9	0.6
15-16 (01/02)	0.5	0.8	1.3	0.2	0.8	0.6
17-18 (00/01)	1.6	3.5	4.2	0.9	3.2	2.1
17-18 (01/02)	1.7	2.8	4.1	1.0	3.3	2.1
19 (00/01)	1.7	2.7	3.4	0.7	2.3	1.8
19 (01/02)	1.4	2.5	3.6	0.8	2.3	1.7

Health Authority (HA) Legend	
FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island

Table 3

Teen Births by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002

		<15		15-16		17-18		19		Total Teen Mothers		Mothers >=20	Total Mothers	
HA	HSDA	#	%	#	%	#	%	#	%	#	%	#	#	%
FHA	FE	3	0.1	23	0.8	85	3.0	66	2.3	174	6.1	2694	2871	100.0
	FN	2	0.0	15	0.3	72	1.3	65	1.2	154	2.8	5314	5468	100.0
	FS	0	0.0	31	0.5	96	1.4	79	1.2	206	3.1	6547	6753	100.0
Total		5	0.0	69	0.5	253	1.7	210	1.4	537	3.6	14555	15092	100.0
IHA	EK	0	0.0	11	1.8	30	5.0	23	3.8	64	10.6	542	606	100.0
	KB	0	0.0	2	0.3	14	2.4	7	1.2	23	3.9	567	590	100.0
	OK	0	0.0	15	0.6	57	2.3	49	2.0	121	4.8	2382	2503	100.0
	TC	2	0.1	18	1.0	52	2.9	58	3.2	130	7.2	1677	1807	100.0
Total		2	0.0	46	0.8	153	2.8	137	2.5	338	6.1	5168	5506	100.0
NHA	NE	0	0.0	7	0.8	28	3.3	32	3.8	67	7.9	776	843	100.0
	NI	0	0.0	19	1.2	57	3.6	55	3.5	131	8.3	1445	1576	100.0
	NW	3	0.3	18	1.8	54	5.5	36	3.7	111	11.3	871	982	100.0
Total		3	0.1	44	1.3	139	4.1	123	3.6	309	9.1	3092	3401	100.0
VCHA	NSCG	0	0.0	6	0.3	29	1.3	24	1.1	59	2.7	2132	2191	100.0
	RICH	0	0.0	1	0.1	8	0.5	14	0.9	23	1.5	1511	1534	100.0
	VANC	1	0.0	15	0.3	55	1.0	37	0.7	108	1.9	5493	5601	100.0
Total		1	0.0	22	0.2	92	1.0	75	0.8	190	2.0	9136	9326	100.0
VIHA	CVI	1	0.1	24	1.3	81	4.3	55	2.9	161	8.5	1737	1898	100.0
	NVI	0	0.0	6	1.1	27	4.7	22	3.9	55	9.6	515	570	100.0
	SVI	3	0.1	17	0.5	82	2.6	53	1.7	155	4.8	3050	3205	100.0
Total		4	0.1	47	0.8	190	3.3	130	2.3	371	6.5	5302	5673	100.0
BCUNSPEC		0	0.0	0	0.0	2	2.4	3	3.6	5	6.0	79	84	100.0
NONRES		0	0.0	0	0.0	4	2.6	4	2.6	8	5.2	146	154	100.0
Province		15	0.0	228	0.6	833	2.1	682	1.7	1758	4.5	37478	39236	100.0

2000/2001

		<15		15-16		17-18		19		Total Teen Mothers		Mothers >=20	Total Mothers	
HA	HSDA	#	%	#	%	#	%	#	%	#	%	#	#	%
FHA	FE	0	0.0	15	0.5	71	2.6	77	2.8	163	6.0	2569	2732	100.0
	FN	1	0.0	22	0.4	78	1.4	70	1.3	171	3.1	5288	5459	100.0
	FS	0	0.0	30	0.4	93	1.4	102	1.5	225	3.3	6505	6730	100.0
Total		1	0.0	67	0.4	242	1.6	249	1.7	559	3.7	14362	14921	100.0
IHA	EK	1	0.2	12	1.9	30	4.6	31	4.8	74	11.4	574	648	100.0
	KB	0	0.0	2	0.3	13	2.2	5	0.8	20	3.3	581	601	100.0
	OK	2	0.1	14	0.5	71	2.8	54	2.1	141	5.5	2419	2560	100.0
	TC	4	0.2	15	0.8	86	4.7	65	3.5	170	9.2	1676	1846	100.0
Total		7	0.1	43	0.8	200	3.5	155	2.7	405	7.2	5250	5655	100.0
NHA	NE	0	0.0	9	1.1	37	4.5	37	4.5	83	10.2	734	817	100.0
	NI	0	0.0	16	1.0	64	4.0	47	2.9	127	8.0	1467	1594	100.0
	NW	2	0.2	21	2.0	42	4.1	34	3.3	99	9.6	934	1033	100.0
Total		2	0.1	46	1.3	143	4.2	118	3.4	309	9.0	3135	3444	100.0
VCHA	NSCG	0	0.0	14	0.6	26	1.1	24	1.0	64	2.7	2310	2374	100.0
	RICH	0	0.0	1	0.1	10	0.6	12	0.8	23	1.5	1526	1549	100.0
	VANC	0	0.0	16	0.3	47	0.8	33	0.6	96	1.7	5648	5743	100.0
Total		0	0.0	31	0.3	83	0.9	69	0.7	183	1.9	9484	9666	100.0
VIHA	CVI	2	0.1	12	0.7	58	3.2	47	2.6	119	6.6	1679	1798	100.0
	NVI	0	0.0	16	2.8	29	5.2	20	3.6	65	11.6	497	562	100.0
	SVI	2	0.1	23	0.7	90	2.9	58	1.8	173	5.5	2973	3146	100.0
Total		4	0.1	51	0.9	177	3.2	125	2.3	357	6.5	5149	5506	100.0
BCUNSPEC		0	0.0	0	0.0	0	0.0	3	5.9	3	5.9	47	51	100.0
NONRES		0	0.0	0	0.0	1	0.7	5	3.7	6	4.4	129	135	100.0
Province		14	0.0	238	0.6	846	2.1	724	1.8	1822	4.6	37556	39378	100.0

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
BCUNSPEC	BC residents with unknown postal code
NONRES	Non Resident of BC

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

Maternal Smoking Rate by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 4)

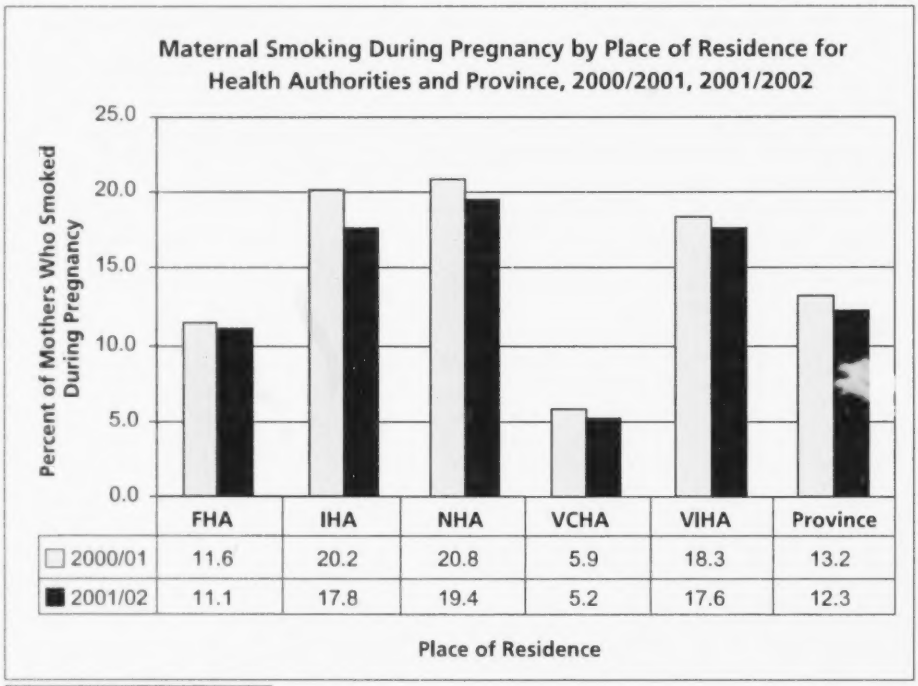
There is a substantial body of literature addressing the impact of maternal behaviors on infant health. Smoking in pregnancy is one lifestyle choice that is associated with poor birth outcomes, including low birth weight, prematurity, intrauterine growth restriction and stillbirth. According to the Canadian Institute of Child Health (CICH), "maternal smoking is the most clearly established preventable risk factor associated with low birth weight, and it is now accepted that the relationship is direct and causal". Decreasing the incentives to use tobacco, especially among teens, as well as reducing the involuntary exposure to nicotine of unborn children, must remain a high priority.

For the purposes of this report, maternal smoking is defined as smoking at any time during the current pregnancy. The knowledge that smoking during pregnancy can adversely affect the outcome of pregnancy may have resulted in mothers' under-stating their smoking behaviour. Research has shown that younger mothers are more likely to report smoking behaviour and that prevalence decreases with increasing maternal age (ibid). Across Canada, reported rates of smoking vary by province, with the highest rates in Quebec and the Atlantic Provinces and the lowest rates in BC and Ontario (Canadian Perinatal Health Report, 2000).

Overall, 12.3% of BC mothers smoked during pregnancy in 2001/2002. This was a slight decline from 13.2% in 2000/2001. For both years the rates were higher in the Northern and Interior HAs and lower in the Vancouver Coastal HA. The Northeast HSDA had a maternal smoking rate of 23.1% in 2001/2002. Other HSDAs with high rates of maternal smoking were Central Vancouver Island at 22.1%, East Kootenay at 20.5%, Kootenay/Boundary at 19.8% and Thompson Cariboo Shuswap at 20.0%. Richmond and Vancouver had the lowest rates, 4.5% and 4.8% respectively. The patterns for 2000/2001 were very similar.

The difference in rates between the northern communities and the lower mainland is noteworthy. It is important to **continue to promote** non-smoking in those HSDAs with low rates and to target interventions for smoking women in the high rate areas in order to promote a healthy lifestyle as early as possible.

Figure 4



Health Authority (HA) Legend

FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island

Table 4

Maternal Smoking During Pregnancy by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

		2001/2002					
		Yes		No		Total	
HA	HSDA	#	%	#	%	#	%
FHA	FE	458	16.0	2413	84.0	2871	100.0
	FN	546	10.0	4922	90.0	5468	100.0
	FS	674	10.0	6079	90.0	6753	100.0
Total		**1678**	**11.1**	**13414**	**88.9**	**15092**	**100.0**
IHA	EK	124	20.5	482	79.5	606	100.0
	KB	117	19.8	473	80.2	590	100.0
	OK	376	15.0	2127	85.0	2503	100.0
	TC	362	20.0	1445	80.0	1807	100.0
Total		**979**	**17.8**	**4527**	**82.2**	**5506**	**100.0**
NHA	NE	195	23.1	648	76.9	843	100.0
	NI	293	18.6	1283	81.4	1576	100.0
	NW	173	17.6	809	82.4	982	100.0
Total		**661**	**19.4**	**2740**	**80.6**	**3401**	**100.0**
VCHA	NSCG	150	6.8	2041	93.2	2191	100.0
	RICH	69	4.5	1465	95.5	1534	100.0
	VANC	268	4.8	5333	95.2	5601	100.0
Total		**487**	**5.2**	**8839**	**94.8**	**9326**	**100.0**
VIHA	CVI	420	22.1	1478	77.9	1898	100.0
	NVI	105	18.4	465	81.6	570	100.0
	SVI	474	14.8	2731	85.2	3205	100.0
Total		**999**	**17.6**	**4674**	**82.4**	**5673**	**100.0**
BCUNSPEC		**17**	**20.2**	**67**	**79.8**	**84**	**100.0**
NONRES		**20**	**13.0**	**134**	**87.0**	**154**	**100.0**
Province		**4841**	**12.3**	**34395**	**87.7**	**39236**	**100.0**
		2000/2001					
		Yes		No		Total	
HA	HSDA	#	%	#	%	#	%
FHA	FE	408	14.9	2324	85.1	2732	100.0
	FN	577	10.6	4882	89.4	5459	100.0
	FS	739	11.0	5991	89.0	6730	100.0
Total		**1724**	**11.6**	**13197**	**88.4**	**14921**	**100.0**
IHA	EK	144	22.2	504	77.8	648	100.0
	KB	98	16.3	503	83.7	601	100.0
	OK	479	18.7	2081	81.3	2560	100.0
	TC	423	22.9	1423	77.1	1846	100.0
Total		**1144**	**20.2**	**4511**	**79.8**	**5655**	**100.0**
NHA	NE	182	22.3	635	77.7	817	100.0
	NI	321	20.1	1273	79.9	1594	100.0
	NW	212	20.5	821	79.5	1033	100.0
Total		**715**	**20.8**	**2729**	**79.2**	**3444**	**100.0**
VCHA	NSCG	204	8.6	2170	91.4	2374	100.0
	RICH	66	4.3	1483	95.7	1549	100.0
	VANC	300	5.2	5444	94.8	5744	100.0
Total		**570**	**5.9**	**9097**	**94.1**	**9667**	**100.0**
VIHA	CVI	383	21.3	1415	78.7	1798	100.0
	NVI	109	19.4	453	80.6	562	100.0
	SVI	514	16.3	2632	83.7	3146	100.0
Total		**1006**	**18.3**	**4500**	**81.7**	**5506**	**100.0**
BCUNSPEC		**10**	**20.0**	**40**	**80.0**	**50**	**100.0**
NONRES		**16**	**11.9**	**119**	**88.1**	**135**	**100.0**
Province		**5185**	**13.2**	**34193**	**86.8**	**39378**	**100.0**

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
BCUNSPEC	BC residents with unknown postal code
NONRES	Non Resident of BC

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island

Breastfeeding at Discharge Rate by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 5)

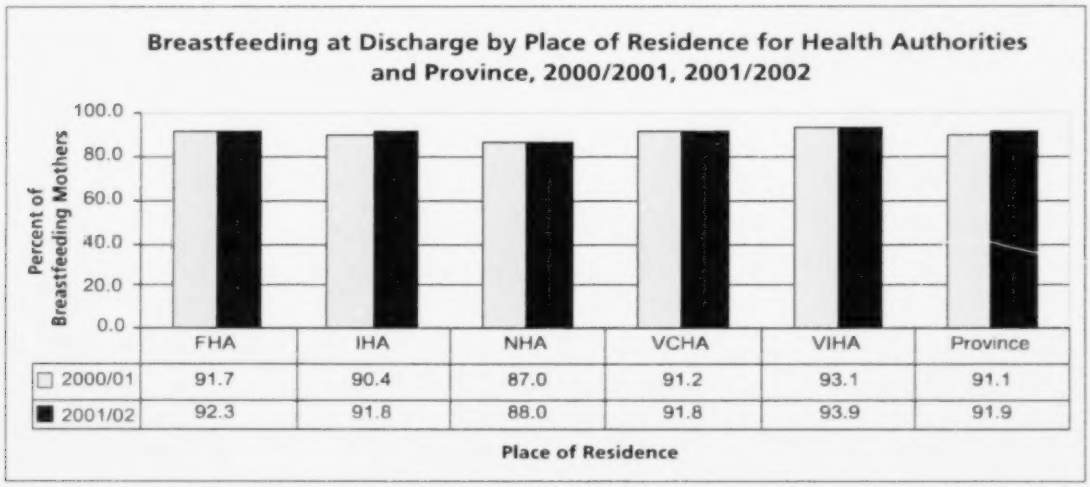
Exclusive and sustained breastfeeding provides nutritional, immunological and emotional nurturing for normal growth and development during the first year of a child's life (Breastfeeding Committee for Canada (BCC), 2002). Evidence has shown that exclusive breastfeeding for the first six months of life promotes lower risks of contracting respiratory disease, otitis media, gastroenteritis, bacterial meningitis, urinary tract infections and necrotizing enterocolitis (American Academy of Pediatrics, 1997). There is also a possible protective effect against low iron stores and anaemia in the infant.

There are benefits to individual women and communities, reflected in enhanced protection against cancers of the breast, ovary and endometrium, and by increasing the spacing between pregnancies (BCC, 2002).

The data from the BCPDR does not identify if breastfeeding was exclusive since the definition currently employed is breastfeeding at discharge, either exclusively or in combination with formula supplementation. Future revisions to the data fields of the BCPDR will include separate fields for each choice, with accompanying definitions, so that rates will reflect a more detailed picture.

The overall provincial percentage of mothers that were breastfeeding at discharge was very high in 2001/2002 at 91.9% and 91.1% in 2000/2001. In 2001/2002, the Vancouver Island and Fraser HA reported the highest percentage of breastfeeding at 93.9% and 92.3% respectively. The lowest percentage of breastfeeding occurred in the Northern HA with 88.0% in 2001/2002 and 87.0% in 2000/2001.

Figure 5



Health Authority (HA) Legend	
FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island

Table 5

Breastfeeding at Discharge by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002

		Yes		No		Unknown		Total		NA
HA	HSDA	#	%	#	%	#	%	#	%	#
FHA	FE	2555	89.3	236	8.3	69	2.4	2860	100.0	11
	FN	5082	93.6	323	5.9	25	0.5	5430	100.0	38
	FS	6199	92.5	460	6.9	41	0.6	6700	100.0	53
Total		13836	92.3	1019	6.8	135	0.9	14990	100.0	102
IHA	EK	545	90.1	49	8.1	11	1.8	605	100.0	1
	KB	547	93.2	33	5.6	7	1.2	587	100.0	3
	OK	2326	93.3	138	5.5	29	1.2	2493	100.0	10
	TC	1614	89.9	154	8.6	28	1.6	1796	100.0	11
Total		5032	91.8	374	6.8	75	1.4	5481	100.0	25
NHA	NE	747	88.9	84	10.0	9	1.1	840	100.0	3
	NI	1363	87.4	153	9.8	43	2.8	1559	100.0	17
	NW	855	88.1	96	9.9	20	2.1	971	100.0	11
Total		2965	88.0	333	9.9	72	2.1	3370	100.0	31
VCHA	NSCG	2110	97.1	59	2.7	5	0.2	2174	100.0	17
	RICH	1421	93.4	92	6.0	9	0.6	1522	100.0	12
	VANC	4976	89.4	582	10.5	10	0.2	5568	100.0	33
Total		8507	91.8	733	7.9	24	0.3	9264	100.0	62
VIHA	CVI	1736	92.0	131	6.9	20	1.1	1887	100.0	11
	NVI	522	92.2	31	5.5	13	2.3	566	100.0	4
	SVI	3037	95.3	133	4.2	18	0.6	3188	100.0	17
Total		5295	93.9	295	5.2	51	0.9	5641	100.0	32
BCUNSPEC		72	86.7	10	12.0	1	1.2	83	100.0	1
NONRES		131	87.3	17	11.3	2	1.3	150	100.0	4
Province		35838	91.9	2781	7.1	360	0.9	38979	100.0	257

2000/2001

		Yes		No		Unknown		Total		NA
HA	HSDA	#	%	#	%	#	%	#	%	#
FHA	FE	2421	88.9	239	8.8	62	2.3	2722	100.0	10
	FN	5025	92.8	360	6.6	29	0.5	5414	100.0	45
	FS	6128	91.8	501	7.5	44	0.7	6673	100.0	57
Total		13574	91.7	1100	7.4	135	0.9	14809	100.0	112
IHA	EK	602	93.5	36	5.6	6	0.9	644	100.0	4
	KB	548	91.5	41	6.8	10	1.7	599	100.0	2
	OK	2355	92.6	158	6.2	30	1.2	2543	100.0	17
	TC	1581	86.1	177	9.6	79	4.3	1837	100.0	9
Total		5086	90.4	412	7.3	125	2.2	5623	100.0	32
NHA	NE	716	88.7	82	10.2	9	1.1	807	100.0	10
	NI	1344	84.7	183	11.5	59	3.7	1586	100.0	8
	NW	915	89.3	89	8.7	21	2.0	1025	100.0	8
Total		2975	87.0	354	10.4	89	2.6	3418	100.0	26
VCHA	NSCG	2272	96.2	78	3.3	12	0.5	2362	100.0	12
	RICH	1416	92.3	108	7.0	10	0.7	1534	100.0	15
	VANC	5071	88.9	604	10.6	31	0.5	5706	100.0	38
Total		8759	91.2	790	8.2	53	0.6	9602	100.0	65
VIHA	CVI	1656	92.9	111	6.2	16	0.9	1783	100.0	15
	NVI	499	89.9	43	7.7	13	2.3	555	100.0	7
	SVI	2938	93.8	168	5.4	25	0.8	3131	100.0	15
Total		5093	93.1	322	5.9	54	1.0	5469	100.0	37
BCUNSPEC		35	71.4	13	26.5	1	2.0	49	100.0	1
NONRES		115	86.5	17	12.8	1	0.8	133	100.0	2
Province		35637	91.1	3008	7.7	458	1.2	39103	100.0	275

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
BCUNSPEC	BC residents with unknown postal code
NONRES	Non Resident of BC

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

NA – Stillbirths and Deaths

Induction of Labour Rate by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

(Refer to Data Table 6)

Labour induction is an obstetric intervention associated with potential risks to both mother and infant. Induction is initiated when the risks of prolonging the pregnancy (for either mother or baby) outweigh the risks associated with the procedure. Indications for induction may include post term pregnancy, poorly controlled hypertension of pregnancy and prolonged rupture of membranes at term (BCRCP, Guideline for the Induction of Labour, 1999).

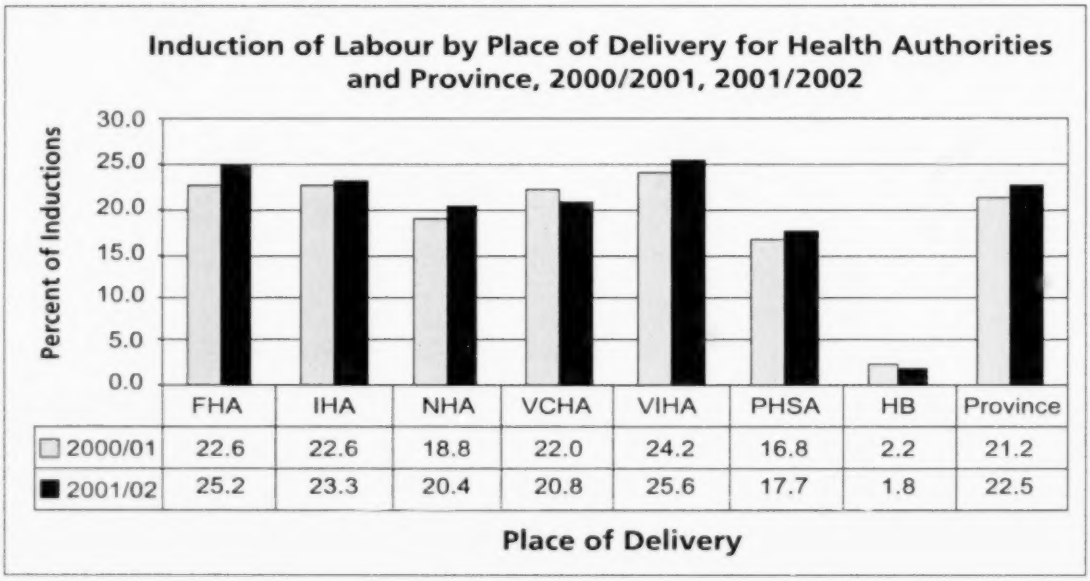
Induction rates in the data presented include both medical (oxytocin, prostaglandin) and surgical induction (artificial rupture of membranes).

The Provincial induction rate was 22.5% in 2001/2002 and 21.2% in 2000/2001. The majority of inductions occurred in hospital. The induction rate among home births was considerably lower at 1.8% in 2001/2002 and 2.2% in 2000/2001. In 2001/2002, the Fraser and Vancouver Island HAs had the highest induction rate at 25.2% and 25.6% respectively. The lowest rate among the health authorities was the Northern HA with a rate of 20.4%.

Within the health authorities, there was no consistently higher or lower rate of induction when compared to the provincial level. For example, the South Vancouver Island HSDA had the highest rate in 2001/2002 at 26.7%. The Northern Interior, Northwest, Thompson Cariboo Shuswap, North Shore/Coast Garibaldi and Richmond HSDAs had rates all below the provincial level.

Please see the In Focus section on page 38 for a detailed analysis of this indicator.

Figure 6



	FHA	IHA	NHA	VCHA	VIHA	PHSA	HB	Province
2000/01	22.6	22.6	18.8	22.0	24.2	16.8	2.2	21.2
2001/02	25.2	23.3	20.4	20.8	25.6	17.7	1.8	22.5

Health Authority (HA) Legend

FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island
PHSA	Provincial Health Services Authority
HB	Home Births

Table 6 **Induction of Labour by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001**

2001/2002

		Yes		No		Unknown		Total	
HA	HSDA	#	%	#	%	#	%	#	%
FHA	FE	623	24.8	1887	75.2	0	0.0	2510	100.0
	FN	1264	25.2	3758	74.8	0	0.0	5022	100.0
	FS	1383	25.3	4084	74.7	1	0.0	5468	100.0
Total		**3270**	**25.2**	**9729**	**74.8**	**1**	**0.0**	**13000**	**100.0**
IHA	EK	147	25.8	423	74.2	0	0.0	570	100.0
	KB	132	25.1	393	74.9	0	0.0	525	100.0
	OK	627	24.8	1900	75.2	1	0.0	2528	100.0
	TC	360	19.8	1456	80.2	0	0.0	1816	100.0
Total		**1266**	**23.3**	**4172**	**76.7**	**1**	**0.0**	**5439**	**100.0**
NHA	NE	206	24.0	651	76.0	0	0.0	857	100.0
	NI	283	18.6	1235	81.4	0	0.0	1518	100.0
	NW	186	19.8	749	79.8	4	0.4	939	100.0
Total		**675**	**20.4**	**2635**	**79.5**	**4**	**0.1**	**3314**	**100.0**
VCHA	NSCG	370	20.2	1462	79.8	0	0.0	1832	100.0
	RICH	298	20.7	1143	79.3	0	0.0	1441	100.0
	VANC	373	21.5	1357	78.4	1	0.1	1731	100.0
Total		**1041**	**20.8**	**3962**	**79.2**	**1**	**0.0**	**5004**	**100.0**
VIHA	CVI	452	24.3	1410	75.7	1	0.1	1863	100.0
	NVI	99	22.8	335	77.2	0	0.0	434	100.0
	SVI	859	26.7	2357	73.3	0	0.0	3216	100.0
Total		**1410**	**25.6**	**4102**	**74.4**	**1**	**0.0**	**5513**	**100.0**
PHSA		**1151**	**17.7**	**5360**	**82.3**	**0**	**0.0**	**6511**	**100.0**
HB		**8**	**1.8**	**447**	**98.2**	**0**	**0.0**	**455**	**100.0**
Province		**8821**	**22.5**	**30407**	**77.5**	**8**	**0.0**	**39236**	**100.0**

2000/2001

		Yes		No		Unknown		Total	
HA	HSDA	#	%	#	%	#	%	#	%
FHA	FE	514	21.2	1914	78.8	0	0.0	2428	100.0
	FN	1123	22.2	3926	77.7	1	0.0	5050	100.0
	FS	1269	23.6	4110	76.4	0	0.0	5379	100.0
Total		**2906**	**22.6**	**9950**	**77.4**	**1**	**0.0**	**12857**	**100.0**
IHA	EK	155	25.0	464	75.0	0	0.0	619	100.0
	KB	141	26.3	396	73.7	0	0.0	537	100.0
	OK	661	25.5	1933	74.5	0	0.0	2594	100.0
	TC	296	16.5	1499	83.3	4	0.2	1799	100.0
Total		**1253**	**22.6**	**4292**	**77.3**	**4**	**0.1**	**5549**	**100.0**
NHA	NE	182	22.1	641	77.8	1	0.1	824	100.0
	NI	267	17.0	1303	82.8	3	0.2	1573	100.0
	NW	186	19.0	795	81.0	0	0.0	981	100.0
Total		**635**	**18.8**	**2739**	**81.1**	**4**	**0.1**	**3378**	**100.0**
VCHA	NSCG	446	22.1	1573	77.9	0	0.0	2019	100.0
	RICH	276	19.7	1123	80.3	0	0.0	1399	100.0
	VANC	396	23.8	1269	76.2	0	0.0	1665	100.0
Total		**1118**	**22.0**	**3965**	**78.0**	**0**	**0.0**	**5083**	**100.0**
VIHA	CVI	397	22.8	1342	77.2	0	0.0	1739	100.0
	NVI	90	21.6	326	78.4	0	0.0	416	100.0
	SVI	812	25.2	2408	74.8	1	0.0	3221	100.0
Total		**1299**	**24.2**	**4076**	**75.8**	**1**	**0.0**	**5376**	**100.0**
PHSA		**1139**	**16.8**	**5634**	**83.2**	**0**	**0.0**	**6773**	**100.0**
HB		**8**	**2.2**	**354**	**97.8**	**0**	**0.0**	**362**	**100.0**
Province		**8358**	**21.2**	**31010**	**78.7**	**10**	**0.0**	**39378**	**100.0**

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
HB	Home Births

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

Electronic Fetal Monitoring Rate by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 7)

The aim of intrapartum fetal surveillance is to improve fetal outcomes by identifying fetuses with intrauterine compromise at a point where the process is possibly still reversible by expedited delivery. Electronic Fetal Monitoring (EFM) is considered appropriate to assess fetal well-being when there are non-reassuring fetal heart tones on intermittent auscultation or in high risk pregnancies (SOGC, Guideline on Fetal Heart Monitoring in Labour, 2002).

Over the past two decades, research has challenged the clinical value of routine electronic fetal heart rate monitoring in low risk pregnancies (MacDonald et al, 1985). Meta-analysis of these data has led to two significant observations:

- EFM compared to Intermittent Auscultation (IA) has not been shown to improve fetal or neonatal outcomes as measured by a decrease in morbidity or mortality
- EFM is associated with an increase in caesarean section rates, operative vaginal delivery and the use of epidural anesthesia

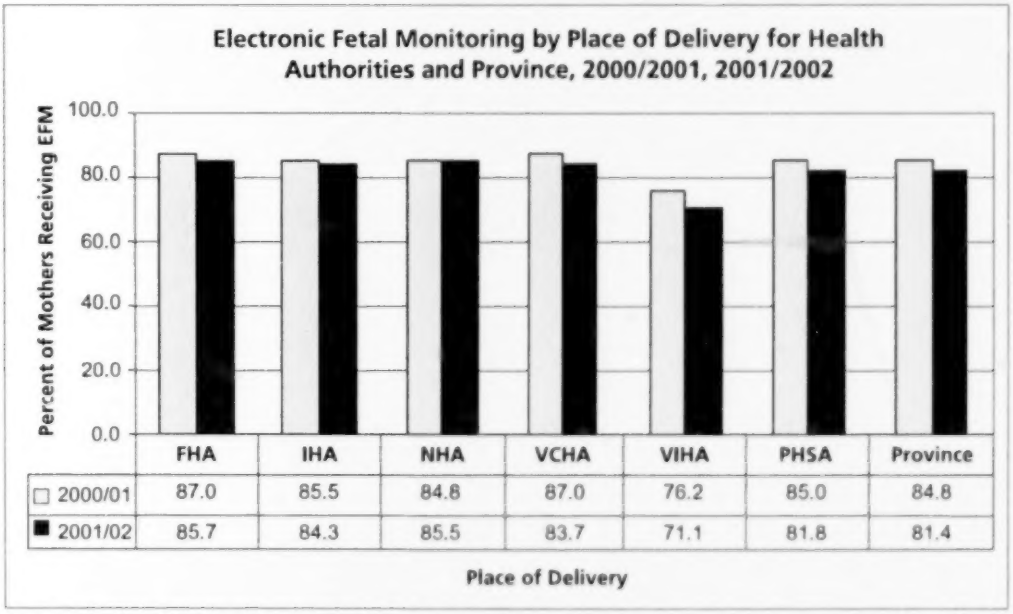
In 1995, the Society of Obstetricians and Gynecologists of Canada stated that the "preferred method for monitoring low-risk women in labour is intermittent fetal auscultation with a hand-held Doppler". Nevertheless, a significant number of women with no identifiable risk factors and normal fetal heart rate patterns continue to receive EFM in labour because of local practice styles (BCRCP, Report on the 1999 Perinatal Services Survey, 1999).

The analysis for electronic fetal monitoring is by place of delivery as this permits examination of practices of institutions within health authorities. Electronic fetal monitoring is defined as a mother who had internal and/or external fetal heart monitoring during first or second stages of labour. This includes mothers who may have had only a brief period (20 - 30 minutes) of monitoring on admission to hospital, in accordance with local protocols.

Provincially in 2001/2002, 81.4% of labouring mothers were monitored by EFM. This represents a slight decrease from 84.8% in 2000/2001. In 2001/2002, Vancouver Island HA was well below the provincial level at 71.1%. The other health authorities had rates very similar to each other and were only slightly above the provincial level. Interestingly, Northern Vancouver Island HSDA had the lowest rate at 55.4%. The Northeast HSDA had the highest rate at 92.7%. EFM rates for 2000/2001 were very similar.

Given the position taken by the Society of Obstetricians and Gynaecologists of Canada (SOGC), and the growing body of evidence in support of intermittent auscultation as the method of choice for fetal surveillance in low risk pregnancies, practitioners should continue to push for a reduction in the use of electronic fetal monitoring in this context.

Figure 7



Health Authority (HA) Legend			
FHA	Fraser	VIHA	Vancouver Island
IHA	Interior	PHSA	Provincial Health Services Authority
NHA	Northern		
VCHA	Vancouver Coastal		

Table 7 **Electronic Fetal Monitoring by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001**

2001/2002

		Yes		No		Moms Laboured		NA	Total Moms
HA	HSDA	#	%	#	%	#	%	#	#
FHA	FE	1848	81.5	420	18.5	2268	100.0	242	2510
	FN	4119	90.9	413	9.1	4532	100.0	490	5022
	FS	4034	82.9	832	17.1	4866	100.0	602	5468
Total		10001	85.7	1665	14.3	11666	100.0	1334	13000
IHA	EK	411	79.0	109	21.0	520	100.0	50	570
	KB	325	69.7	141	30.3	466	100.0	59	525
	OK	2075	91.4	194	8.6	2269	100.0	259	2528
	TC	1276	80.1	317	19.9	1593	100.0	223	1816
Total		4087	84.3	761	15.7	4848	100.0	591	5439
NHA	NE	734	92.7	58	7.3	792	100.0	65	857
	NI	1125	82.9	232	17.1	1357	100.0	161	1518
	NW	710	82.8	147	17.2	857	100.0	82	939
Total		2569	85.5	437	14.5	3006	100.0	308	3314
VCHA	NSCG	1348	84.7	243	15.3	1591	100.0	241	1832
	RICH	1150	90.3	123	9.7	1273	100.0	168	1441
	VANC	1195	77.1	355	22.9	1550	100.0	181	1731
Total		3693	83.7	721	16.3	4414	100.0	590	5004
VIHA	CVI	1317	79.1	348	20.9	1665	100.0	198	1863
	NVI	215	55.4	173	44.6	388	100.0	46	434
	SVI	1940	68.6	887	31.4	2827	100.0	389	3216
Total		3472	71.1	1408	28.9	4880	100.0	633	5513
PHSA		4650	81.8	1038	18.2	5688	100.0	823	6511
HB		0	0.0	455	100.0	455	100.0	0	455
Province		28472	81.4	6485	18.6	34957	100.0	4279	39236

2000/2001

		Yes		No		Moms Laboured		NA	Total Moms
HA	HSDA	#	%	#	%	#	%	#	#
FHA	FE	1817	82.9	375	17.1	2192	100.0	236	2428
	FN	4160	88.9	518	11.1	4678	100.0	372	5050
	FS	4252	87.0	638	13.0	4890	100.0	489	5379
Total		10229	87.0	1531	13.0	11760	100.0	1097	12857
IHA	EK	392	68.7	179	31.3	571	100.0	48	619
	KB	392	80.0	98	20.0	490	100.0	47	537
	OK	2201	93.8	145	6.2	2346	100.0	248	2594
	TC	1317	81.0	309	19.0	1626	100.0	173	1799
Total		4302	85.5	731	14.5	5033	100.0	516	5549
NHA	NE	671	88.2	90	11.8	761	100.0	63	824
	NI	1190	83.3	239	16.7	1429	100.0	144	1573
	NW	764	84.5	140	15.5	904	100.0	77	981
Total		2625	84.8	469	15.2	3094	100.0	284	3378
VCHA	NSCG	1535	85.9	253	14.1	1788	100.0	231	2019
	RICH	1094	86.4	172	13.6	1266	100.0	133	1399
	VANC	1357	88.8	171	11.2	1528	100.0	137	1665
Total		3986	87.0	596	13.0	4582	100.0	501	5083
VIHA	CVI	1285	80.8	305	19.2	1590	100.0	149	1739
	NVI	246	65.1	132	34.9	378	100.0	38	416
	SVI	2165	75.1	719	24.9	2884	100.0	337	3221
Total		3696	76.2	1156	23.8	4852	100.0	524	5376
PHSA		5182	85.0	915	15.0	6097	100.0	676	6773
HB		0	0.0	362	0.0	0	0.0	0	362
Province		30020	84.8	5398	15.2	35418	100.0	3598	39378

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
HB	Home Births

Health Service Delivery Area (HSDA)

FE	East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

NA – Mothers who did not labour and had elective C/Sections

Episiotomy Rate by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 8)

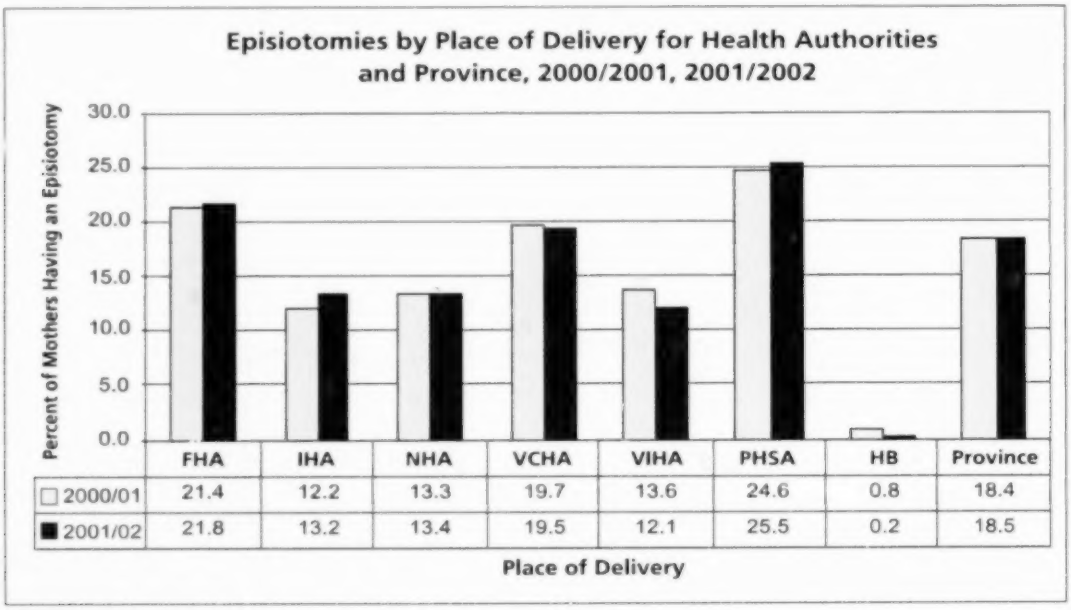
Episiotomy is one of the most common surgical procedures in North America, yet there is minimal evidence to support its liberal or routine use. Higher rates of episiotomy are consistently observed in first vaginal births and instrumental deliveries (Bobak et al, 1997). Perineal integrity is compromised, leading to short-term morbidity such as pain and haemorrhage. Potential longer term morbidity includes protracted pain and difficulties in sexual function and urinary stress incontinence (Enkin et al, 1996). There is still debate as to what is an acceptable episiotomy rate in uncomplicated vaginal deliveries (ibid).

Analysis for episiotomy is by place of delivery. The practices of an institution have more impact on determining whether to do an episiotomy than the place of residence of the mother.

In 2001/2002, 18.5% of women who had vaginal deliveries had an episiotomy. The rate in 2000/2001 was similar. This rate represents a drop from the 22% reported in 1998 and is among the lowest rates in Canada, behind the Yukon and the North West Territories (Canadian Perinatal Health Report, 2000).

The Vancouver Island, Interior and Northern HAs had rates below the provincial level. North Vancouver Island had a comparatively low episiotomy rate for the health services delivery areas at 6.5%. The Home Birth episiotomy rate was lower still at 0.2% in 2001/2002 and 0.8% in 2000/2001.

Figure 8


Episiotomies by Place of Delivery for Health Authorities and Province, 2000/2001, 2001/2002
Percent of Mothers Having an Episiotomy
30.0
25.0
20.0
15.0
10.0
5.0
0.0
FHA IHA NHA VCHA VIHA PHSA HB Province
2000/01 21.4 12.2 13.3 19.7 13.6 24.6 0.8 18.4
2001/02 21.8 13.2 13.4 19.5 12.1 25.5 0.2 18.5
Place of Delivery

Health Authority (HA) Legend	
FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island
PHSA	Provincial Health Services Authority
HB	Home Births

Table 8 Episiotomies by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002

		Yes		No		Total		NA
HA	**HSDA**	**#**	**%**	**#**	**%**	**#**	**%**	**#**
FHA	FE	403	21.0	1516	79.0	1919	100.0	591
	FN	664	17.8	3071	82.2	3735	100.0	1287
	FS	1038	25.8	2978	74.2	4016	100.0	1452
Total		**2105**	**21.8**	**7565**	**78.2**	**9670**	**100.0**	**3330**
IHA	EK	58	12.4	409	87.6	467	100.0	103
	KB	60	14.7	348	85.3	408	100.0	117
	OK	273	14.3	1639	85.7	1912	100.0	616
	TC	147	11.5	1131	88.5	1278	100.0	538
Total		**538**	**13.2**	**3527**	**86.8**	**4065**	**100.0**	**1374**
NHA	NE	126	18.6	551	81.4	677	100.0	180
	NI	124	11.1	990	88.9	1114	100.0	404
	NW	82	11.8	613	88.2	695	100.0	244
Total		**332**	**13.4**	**2154**	**86.6**	**2486**	**100.0**	**828**
VCHA	NSCG	262	19.4	1088	80.6	1350	100.0	482
	RICH	238	23.2	786	76.8	1024	100.0	417
	VANC	204	16.6	1026	83.4	1230	100.0	501
Total		**704**	**19.5**	**2900**	**80.5**	**3604**	**100.0**	**1400**
VIHA	CVI	253	18.3	1132	81.7	1385	100.0	478
	NVI	21	6.5	303	93.5	324	100.0	110
	SVI	211	9.2	2078	90.8	2289	100.0	927
Total		**485**	**12.1**	**3513**	**87.9**	**3998**	**100.0**	**1515**
PHSA		**1187**	**25.5**	**3475**	**74.5**	**4662**	**100.0**	**1849**
HB		**1**	**0.2**	**454**	**99.8**	**455**	**100.0**	**0**
Province		**5352**	**18.5**	**23588**	**81.5**	**28940**	**100.0**	**10296**

2000/2001

		Yes		No		Total		NA
HA	**HSDA**	**#**	**%**	**#**	**%**	**#**	**%**	**#**
FHA	FE	317	16.8	1568	83.2	1885	100.0	543
	FN	787	20.1	3134	79.9	3921	100.0	1129
	FS	1034	24.8	3128	75.2	4162	100.0	1217
Total		**2138**	**21.4**	**7830**	**78.6**	**9968**	**100.0**	**2889**
IHA	EK	65	12.9	440	87.1	505	100.0	114
	KB	52	12.1	379	87.9	431	100.0	106
	OK	231	11.6	1763	88.4	1994	100.0	600
	TC	168	12.8	1147	87.2	1315	100.0	484
Total		**516**	**12.2**	**3729**	**87.8**	**4245**	**100.0**	**1304**
NHA	NE	120	18.6	524	81.4	644	100.0	180
	NI	143	11.6	1090	88.4	1233	100.0	340
	NW	87	11.5	668	88.5	755	100.0	226
Total		**350**	**13.3**	**2282**	**86.7**	**2632**	**100.0**	**746**
VCHA	NSCG	281	18.2	1262	81.8	1543	100.0	476
	RICH	237	22.7	806	77.3	1043	100.0	356
	VANC	231	18.9	988	81.1	1219	100.0	446
Total		**749**	**19.7**	**3056**	**80.3**	**3805**	**100.0**	**1278**
VIHA	CVI	226	16.9	1112	83.1	1338	100.0	401
	NVI	36	11.0	291	89.0	327	100.0	89
	SVI	292	12.1	2122	87.9	2414	100.0	807
Total		**554**	**13.6**	**3525**	**86.4**	**4079**	**100.0**	**1297**
PHSA		**1230**	**24.6**	**3765**	**75.4**	**4995**	**100.0**	**1778**
HB		**3**	**0.8**	**359**	**99.2**	**362**	**100.0**	**0**
Province		**5540**	**18.4**	**24546**	**81.6**	**30086**	**100.0**	**9292**

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
HB	Home Births

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

NA – Moms who were delivered by C/Section

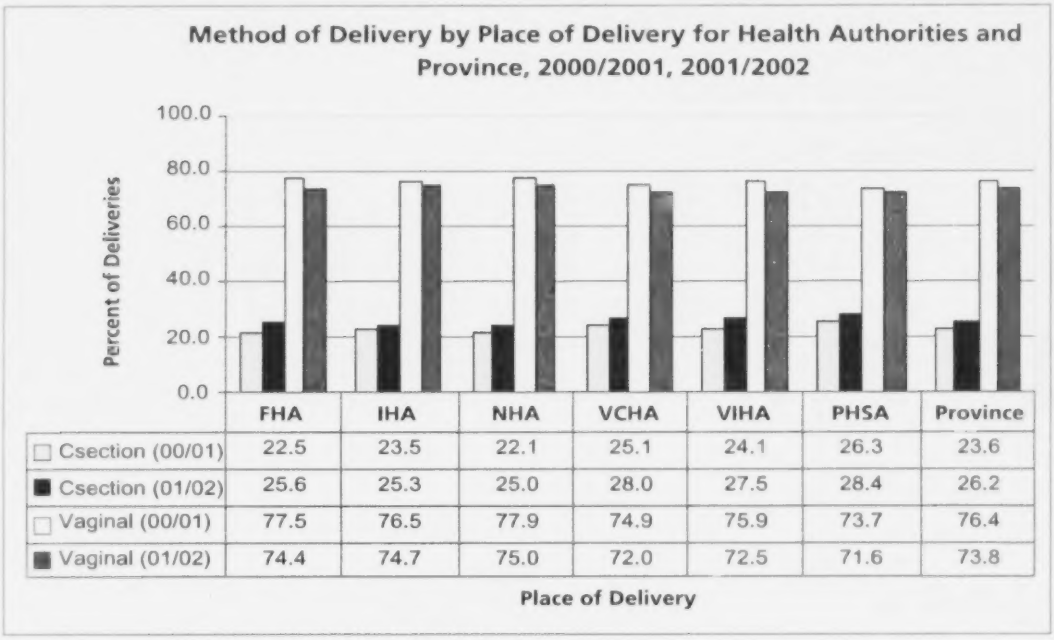
Method of Delivery Rate (Vaginal vs. C/Section) by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 9)

The proportion of mothers delivered by caesarean section in Canada in 2000/2001 was approximately 21% (Canadian Institute for Health Information, 2003). The rate is a concern because of the potentially increased surgical risk to the mother and the additional costs to the system. The main strategies to lower the caesarean section rate have been the establishment of clinical practice guidelines and efforts to encourage women who have had a previous caesarean section to attempt a vaginal delivery (VBAC).

Nulliparous women are more likely to require a caesarean section than parity ≥ 1women; the tendency to delay first pregnancies is a possible explanation for the increase in primary caesarean section rates among mothers 35 years and older. The rate of repeat caesarean section had declined somewhat over the last decade, possibly due to an emphasis on VBAC as a primary strategy to reduce the overall caesarean section rates (SOGC, Guideline on VBAC, 1999).

The caesarean section rate for singleton pregnancies increased to 26.2% in 2001/2002, from 23.6% in 2000/2001. For both years, Vancouver Coastal HA had the highest rate. The other health authorities had rates very similar to the provincial level. Among the health service delivery areas, there were four with similar high rates; Richmond at 28.9%, Vancouver at 28.9%, South Vancouver Island at 28.8% and Thompson Cariboo Shuswap at 29.6%.

Figure 9



	FHA	IHA	NHA	VCHA	VIHA	PHSA	Province
Csection (00/01)	22.5	23.5	22.1	25.1	24.1	26.3	23.6
Csection (01/02)	25.6	25.3	25.0	28.0	27.5	28.4	26.2
Vaginal (00/01)	77.5	76.5	77.9	74.9	75.9	73.7	76.4
Vaginal (01/02)	74.4	74.7	75.0	72.0	72.5	71.6	73.8

Health Authority (HA) Legend

FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island
PHSA	Provincial Health Services Authority

Table 9

Method of Delivery by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002							
		C/Section		Vaginal		Total	
HA	HSDA	#	%	#	%	#	%
FHA	FE	591	23.5	1919	76.5	2510	100.0
	FN	1287	25.6	3735	74.4	5022	100.0
	FS	1452	26.6	4016	73.4	5468	100.0
Total		**3330**	**25.6**	**9670**	**74.4**	**13000**	**100.0**
IHA	EK	103	18.1	467	81.9	570	100.0
	KB	117	22.3	408	77.7	525	100.0
	OK	616	24.4	1912	75.6	2528	100.0
	TC	538	29.6	1278	70.4	1816	100.0
Total		**1374**	**25.3**	**4065**	**74.7**	**5439**	**100.0**
NHA	NE	180	21.0	677	79.0	857	100.0
	NI	404	26.6	1114	73.4	1518	100.0
	NW	244	26.0	695	74.0	939	100.0
Total		**828**	**25.0**	**2486**	**75.0**	**3314**	**100.0**
VCHA	NSCG	482	26.3	1350	73.7	1832	100.0
	RICH	417	28.9	1024	71.1	1441	100.0
	VANC	501	28.9	1230	71.1	1731	100.0
Total		**1400**	**28.0**	**3604**	**72.0**	**5004**	**100.0**
VIHA	CVI	478	25.7	1385	74.3	1863	100.0
	NVI	110	25.3	324	74.7	434	100.0
	SVI	927	28.8	2289	71.2	3216	100.0
Total		**1515**	**27.5**	**3998**	**72.5**	**5513**	**100.0**
PHSA		**1849**	**28.4**	**4662**	**71.6**	**6511**	**100.0**
HB		**0**	**0.0**	**455**	**100.0**	**455**	**100.0**
Province		**10296**	**26.2**	**28940**	**73.8**	**39236**	**100.0**

2000/2001							
		C/Section		Vaginal		Total	
HA	HSDA	#	%	#	%	#	%
FHA	FE	543	22.4	1885	77.6	2428	100.0
	FN	1129	22.4	3921	77.6	5050	100.0
	FS	1217	22.6	4162	77.4	5379	100.0
Total		**2889**	**22.5**	**9968**	**77.5**	**12857**	**100.0**
IHA	EK	114	18.4	505	81.6	619	100.0
	KB	106	19.7	431	80.3	537	100.0
	OK	600	23.1	1994	76.9	2594	100.0
	TC	484	26.9	1315	73.1	1799	100.0
Total		**1304**	**23.5**	**4245**	**76.5**	**5549**	**100.0**
NHA	NE	180	21.8	644	78.2	824	100.0
	NI	340	21.6	1233	78.4	1573	100.0
	NW	226	23.0	755	77.0	981	100.0
Total		**746**	**22.1**	**2632**	**77.9**	**3378**	**100.0**
VCHA	NSCG	476	23.6	1543	76.4	2019	100.0
	RICH	356	25.4	1043	74.6	1399	100.0
	VANC	446	26.8	1219	73.2	1665	100.0
Total		**1278**	**25.1**	**3805**	**74.9**	**5083**	**100.0**
VIHA	CVI	401	23.1	1338	76.9	1739	100.0
	NVI	89	21.4	327	78.6	416	100.0
	SVI	807	25.1	2414	74.9	3221	100.0
Total		**1297**	**24.1**	**4079**	**75.9**	**5376**	**100.0**
PHSA		**1778**	**26.3**	**4995**	**73.7**	**6773**	**100.0**
HB		**0**	**0.0**	**362**	**100.0**	**362**	**100.0**
Province		**9292**	**23.6**	**30086**	**76.4**	**39378**	**100.0**

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
HB	Home Births

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

Postpartum Length of Stay (LOS) Rate by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 10 & 11)

Current scientific knowledge does not provide conclusive evidence about the optimal post-delivery length of stay for either mothers or newborns (BCRCP, Report on the Findings of a Consensus Symposium on the Provision of Postpartum Services, 2002).

In 1996, the Canadian Paediatric Society defined early maternal discharge as within two days of vaginal birth and four days of caesarean birth. In reviewing national and provincial data on postpartum length of stay, it is apparent this had become the norm for most parturients. However, the total length of time that a mother should stay in hospital remains controversial (BCRCP, Report on the Findings of a Consensus Symposium on the Provision of Postpartum Services, 2002). Early postpartum discharge may expose the mother and newborn to increased risk of adverse outcomes, although significant, major morbidity has yet to be demonstrated in clinical studies. The literature is inconclusive; therefore, there is a need to focus on "appropriate" versus "early" discharge (ibid).

Postpartum Length of Stay (Vaginal Deliveries) 2001/2002, 2000/2001

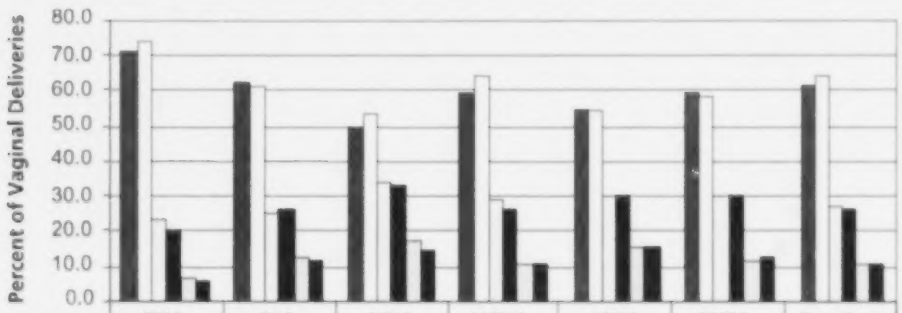
(Refer to Data Table 10)

Analysis is by place of delivery as the practices of institutions have a greater impact on the postpartum length of stay for women than where the woman resides, even though in some circumstances the maternal residence may be a factor in determining length of stay.

In 2001/2002, the provincial rate for length of stay of less than 48 hours (Vaginal Deliveries) was 63.8%, in 2000/2001 it was 61.9%. The Fraser HA was the only health authority with a rate higher than the provincial level. The provincial rate for LOS between 48 and 72 hours was 25.9% of the total vaginal deliveries. For LOS greater than 72 hours, the provincial rate was 10.4%. The only health authority below this was the Fraser HA at 6.0%. In the Fraser HA, 74.0% of the patients were discharged within 48 hours, representing a 10% increase over the provincial rate. The pattern and rates were very similar in 2000/2001.

Figure 10

Postpartum Length of Stay (Vaginal Deliveries) by Place of Delivery for Health Authorities and Province, 2000/2001, 2001/2002



	FHA	IHA	NHA	VCHA	VIHA	PHSA	Province
<48 Hrs (00/01)	70.6	61.9	49.3	59.7	54.2	59.0	61.9
<48 Hrs (01/02)	74.0	61.6	53.0	63.6	54.8	57.8	63.8
48-72 Hrs (00/01)	22.7	25.6	33.4	29.3	30.1	29.7	27.1
48-72 Hrs (01/02)	20.0	26.5	32.8	26.3	30.2	30.0	25.9
>72 Hrs (00/01)	6.8	12.5	17.3	11.0	15.7	11.3	11.0
>72 Hrs (01/02)	6.0	12.0	14.2	10.1	15.0	12.2	10.4

Place of Delivery

Health Authority (HA) Legend

FHA	Fraser	**VIHA**	Vancouver Island
IHA	Interior	**PHSA**	Provincial Health Services Authority
NHA	Northern		
VCHA	Vancouver Coastal		

Table 10

Postpartum Length of Stay (Vaginal Deliveries) by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002

		<48 Hours		48-72 Hours		>72 Hours		Total Applicable		UNKN/ NA	NA/CS	Total
HA	HSDA	#	%	#	%	#	%	#	%	#	#	#
FHA	FE	1340	71.5	418	22.3	117	6.2	1875	100.0	44	591	2510
	FN	2493	67.1	914	24.6	309	8.3	3716	100.0	19	1287	5022
	FS	3263	81.6	584	14.6	150	3.8	3997	100.0	19	1452	5468
Total		7096	74.0	1916	20.0	576	6.0	9588	100.0	82	3330	13000
IHA	EK	269	59.9	124	27.6	56	12.5	449	100.0	18	103	570
	KB	161	41.1	144	36.7	87	22.2	392	100.0	16	117	525
	OK	1202	63.2	482	25.3	218	11.5	1902	100.0	10	616	2528
	TC	831	66.2	308	24.5	117	9.3	1256	100.0	22	538	1816
Total		2463	61.6	1058	26.5	478	12.0	3999	100.0	66	1374	5439
NHA	NE	325	48.4	216	32.2	130	19.4	671	100.0	6	180	857
	NI	579	53.5	370	34.2	133	12.3	1082	100.0	32	404	1518
	NW	382	56.7	211	31.3	81	12.0	674	100.0	21	244	939
Total		1286	53.0	797	32.8	344	14.2	2427	100.0	59	828	3314
	NSCG	803	60.1	343	25.7	191	14.3	1337	100.0	13	482	1832
	RICH	745	73.0	234	22.9	42	4.1	1021	100.0	3	417	1441
	VANC	730	59.6	365	29.8	130	10.6	1225	100.0	5	501	1731
Total		2278	63.6	942	26.3	363	10.1	3583	100.0	21	1400	5004
VIHA	CVI	773	57.3	381	28.2	195	14.5	1349	100.0	36	478	1863
	NVI	235	73.4	69	21.6	16	5.0	320	100.0	4	110	434
	SVI	1148	50.7	738	32.6	380	16.8	2266	100.0	23	927	3216
Total		2156	54.8	1188	30.2	591	15.0	3935	100.0	63	1515	5513
PHSA		2691	57.8	1390	30.0	566	12.2	4637	100.0	25	1849	6511
HB		0	0.0	0	0.0	0	0.0	0	0.0	455	0	455
Province		17960	63.8	7291	25.9	2918	10.4	28169	100.0	771	10296	39236

2000/2001

		<48 Hours		48-72 Hours		>72 Hours		Total Applicable		UNKN/ NA	NA/CS	Total
HA	HSDA	#	%	#	%	#	%	#	%	#	#	#
FHA	FE	1269	68.5	486	26.2	97	5.2	1852	100.0	33	543	2428
	FN	2447	62.8	1078	27.7	373	9.6	3898	100.0	23	1129	5050
	FS	3267	78.8	680	16.4	198	4.8	4145	100.0	17	1217	5379
Total		6983	70.6	2244	22.7	668	6.8	9895	100.0	73	2889	12857
IHA	EK	281	58.9	129	27.0	67	14.0	477	100.0	28	114	619
	KB	193	46.2	136	32.5	89	21.3	418	100.0	13	106	537
	OK	1224	62.1	510	25.9	238	12.1	1972	100.0	22	600	2594
	TC	870	67.9	289	22.5	123	9.6	1282	100.0	33	484	1799
Total		2568	61.9	1064	25.6	517	12.5	4149	100.0	96	1304	5549
NHA	NE	283	44.8	225	35.7	123	19.5	631	100.0	13	180	824
	NI	555	46.1	432	35.9	217	18.0	1204	100.0	29	340	1573
	NW	432	58.3	204	27.5	105	14.2	741	100.0	14	226	981
Total		1270	49.3	861	33.4	445	17.3	2576	100.0	56	746	3378
VCHA	NSCG	870	57.1	441	28.9	213	14.0	1524	100.0	19	476	2019
	RICH	708	68.1	288	27.7	44	4.2	1040	100.0	3	356	1399
	VANC	675	55.6	379	31.2	159	13.1	1213	100.0	6	446	1665
Total		2253	59.7	1108	29.3	416	11.0	3777	100.0	28	1278	5083
VIHA	CVI	690	52.1	412	31.1	222	16.8	1324	100.0	14	401	1739
	NVI	227	72.1	61	19.4	27	8.6	315	100.0	12	89	416
	SVI	1265	53.0	739	31.0	381	16.0	2385	100.0	29	807	3221
Total		2182	54.2	1212	30.1	630	15.7	4024	100.0	55	1297	5376
PHSA		2935	59.0	1479	29.7	560	11.3	4974	100.0	21	1778	6773
HB		0	0.0	0	0.0	0	0.0	0	0.0	362	0	362
Province		18191	61.9	7968	27.1	3236	11.0	29395	100.0	691	9292	39378

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
HB	Home Births

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
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EK	East Kootenay
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OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

UNKN/NA

1) Mothers who delivered vaginally and the PP LOS could not be determined - the time of delivery was not recorded
2) Mothers who delivered prior to admission to hospital
3) Moms transferred to other hospitals
4) Home Births

NA/CS

Mothers who delivered by C Section

Time Groupings

<48 hours includes 47.9999999... or less
48-72 hours includes 48.0 to 72.0
>72 hours includes 72.000001... or greater

Postpartum Length of Stay (C/Section Deliveries) 2001/2002, 2000/2001

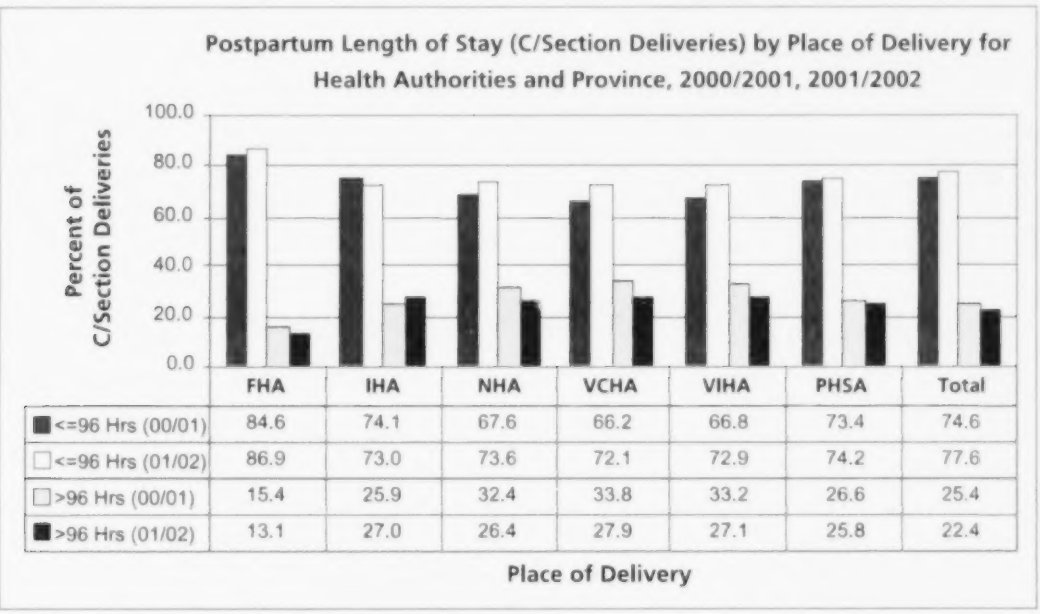
(Refer to Data Table 11)

Analysis is by place of delivery as the practices of institutions have a greater impact on the postpartum length of stay for women than where the woman resides, even though in some circumstances the residence of the mother may be a factor in determining length of stay.

In 2001/2002, the provincial postpartum length of stay greater than 96 hours for caesarean section deliveries was 22.4%, in 2000/2001 it was 25.4%. The Fraser HA was the only health authority below the provincial level at 13.1%. All of the other health authorities had rates above the provincial rate but similar to each other.

47.3% of the patients in the Kootenay Boundary HSDA in 2001/2002 had a postpartum length of stay greater than 96 hours, which was more than double the provincial rate. In 2000/2001, the highest rate of patients with a postpartum length of stay greater than 96 hours was in Kootenay Boundary at rate of 51.5%. In contrast, Fraser South (both years) had the lowest postpartum length of stay greater than 96 hours at 9.9% and 9.7% respectively.

Figure 11



	FHA	IHA	NHA	VCHA	VIHA	PHSA	Total
<=96 Hrs (00/01)	84.6	74.1	67.6	66.2	66.8	73.4	74.6
<=96 Hrs (01/02)	86.9	73.0	73.6	72.1	72.9	74.2	77.6
>96 Hrs (00/01)	15.4	25.9	32.4	33.8	33.2	26.6	25.4
>96 Hrs (01/02)	13.1	27.0	26.4	27.9	27.1	25.8	22.4

Health Authority (HA) Legend

FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island
PHSA	Provincial Health Services Authority

Table 11 Postpartum Length of Stay (C/Section Deliveries) by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002

		<=96 Hours		>96 Hours		Total Applicable		UNKN /NA	NA/Vag	Total
HA	HSDA	#	%	#	%	#	%	#	#	#
FHA	FE	479	86.0	78	14.0	557	100.0	34	1919	2510
	FN	1069	83.3	214	16.7	1283	100.0	4	3735	5022
	FS	1309	90.3	140	9.7	1449	100.0	3	4016	5468
Total		**2857**	**86.9**	**432**	**13.1**	**3289**	**100.0**	**41**	**9670**	**13000**
IHA	EK	61	64.2	34	35.8	95	100.0	8	467	570
	KB	58	52.7	52	47.3	110	100.0	7	408	525
	OK	455	74.5	156	25.5	611	100.0	5	1912	2528
	TC	401	77.3	118	22.7	519	100.0	19	1278	1816
Total		**975**	**73.0**	**360**	**27.0**	**1335**	**100.0**	**39**	**4065**	**5439**
NHA	NE	122	68.2	57	31.8	179	100.0	1	677	857
	NI	304	78.1	85	21.9	389	100.0	15	1114	1518
	NW	162	70.1	69	29.9	231	100.0	13	695	939
Total		**588**	**73.6**	**211**	**26.4**	**799**	**100.0**	**29**	**2486**	**3314**
VCHA	NSCG	316	67.1	155	32.9	471	100.0	11	1350	1832
	RICH	328	78.8	88	21.2	416	100.0	1	1024	1441
	VANC	353	71.2	143	28.8	496	100.0	5	1230	1731
Total		**997**	**72.1**	**386**	**27.9**	**1383**	**100.0**	**17**	**3604**	**5004**
VIHA	CVI	326	70.9	134	29.1	460	100.0	18	1385	1863
	NVI	81	75.7	26	24.3	107	100.0	3	324	434
	SVI	673	73.6	241	26.4	914	100.0	13	2289	3216
Total		**1080**	**72.9**	**401**	**27.1**	**1481**	**100.0**	**34**	**3998**	**5513**
PHSA		**1369**	**74.2**	**476**	**25.8**	**1845**	**100.0**	**4**	**4662**	**6511**
HB		**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**455**	**0**	**455**
Province		**7866**	**77.6**	**2266**	**22.4**	**10132**	**100.0**	**619**	**28485**	**39236**

2000/2001

		<=96 Hours		>96 Hours		Total Applicable		UNKN /NA	NA/Vag	Total
HA	HSDA	#	%	#	%	#	%	#	#	#
FHA	FE	445	85.7	74	14.3	519	100.0	24	1885	2428
	FN	881	78.1	247	21.9	1128	100.0	1	3921	5050
	FS	1088	90.1	119	9.9	1207	100.0	10	4162	5379
Total		**2414**	**84.6**	**440**	**15.4**	**2854**	**100.0**	**35**	**9968**	**12857**
IHA	EK	62	60.8	40	39.2	102	100.0	12	505	619
	KB	50	48.5	53	51.5	103	100.0	3	431	537
	OK	460	77.4	134	22.6	594	100.0	6	1994	2594
	TC	362	78.5	99	21.5	461	100.0	23	1315	1799
Total		**934**	**74.1**	**326**	**25.9**	**1260**	**100.0**	**44**	**4245**	**5549**
NHA	NE	118	66.7	59	33.3	177	100.0	3	644	824
	NI	228	69.9	98	30.1	326	100.0	14	1233	1573
	NW	142	64.8	77	35.2	219	100.0	7	755	981
Total		**488**	**67.6**	**234**	**32.4**	**722**	**100.0**	**24**	**2632**	**3378**
VCHA	NSCG	276	59.4	189	40.6	465	100.0	11	1543	2019
	RICH	280	80.7	67	19.3	347	100.0	9	1043	1399
	VANC	273	61.9	168	38.1	441	100.0	5	1219	1665
Total		**829**	**66.2**	**424**	**33.8**	**1253**	**100.0**	**25**	**3805**	**5083**
VIHA	CVI	255	64.6	140	35.4	395	100.0	6	1338	1739
	NVI	63	73.3	23	26.7	86	100.0	3	327	416
	SVI	532	67.3	259	32.7	791	100.0	16	2414	3221
Total		**850**	**66.8**	**422**	**33.2**	**1272**	**100.0**	**25**	**4079**	**5376**
PHSA		**1300**	**73.4**	**471**	**26.6**	**1771**	**100.0**	**7**	**4995**	**6773**
HB		**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**362**	**0**	**362**
Province		**6815**	**74.6**	**2317**	**25.4**	**9132**	**100.0**	**522**	**29724**	**39378**

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
HB	Home Births

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

UNKN/NA

1) Mothers who delivered by C/Section and the PP LOS could not be determined - the time of delivery was not recorded
2) Mothers who delivered by C/Section and then transferred to other hospitals
3) Home Births

NA/Vag

Mothers who delivered vaginally

Time Groupings

<=96 hours includes 96.0 or less
>96 hours includes 96.0000001..... or more

SECTION III

FETAL AND NEWBORN INDICATORS

SECTION III
FETAL AND NEWBORN INDICATORS

Low and Very Low Birth Weight Rate by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 (Refer to Data Table 12)

Preterm birth has been identified as one of the most important perinatal health problems in industrialised nations and it accounts for 75% - 85% of all perinatal mortality in Canada (SOGC, Joint Position Paper on Rural Maternity Care, 1998). No etiologic determinant of neonatal and infant mortality is more important than low birth weight in general, and very low birth weight in particular. Low and very low birth weight are also important determinants of neonatal and infant morbidity, including neuro-developmental handicap, chronic respiratory problems and retinopathies (Behrman & Shiono, 1997).

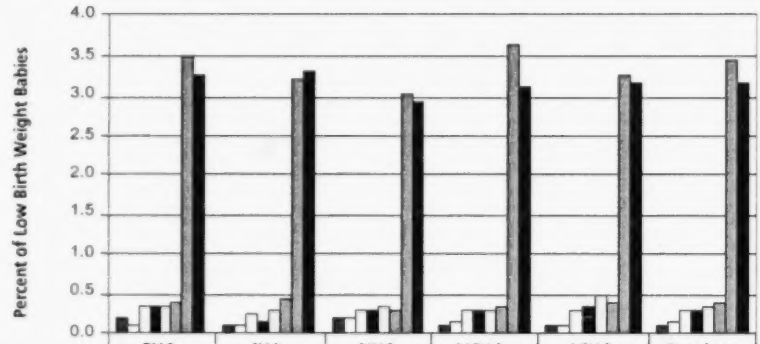
Analysis is by place of residence as opposed to place of delivery. As with the Neonatal/Perinatal/Infant Mortality report, it is socio-demographic factors that will have the greatest impact on determining low birth weight.

Low birth weight (LBW) is classified as less than 2,500 grams. Low birth weight may be due to premature birth (less than 37 weeks gestational age) or intrauterine growth restriction. Those babies weighing less than 1,500 grams are classified as very low birth weight (VLBW); neonatal mortality rates are highest among the very low birth weight group.

In 2001/2002, the total provincial low birth weight rate, (which includes very low birth weight) was 4.0%. In 2000/2001, the rate was 4.2%. The variation of the rates among the health authorities was not remarkable. However, the Thompson Cariboo Shuswap HSDA had a higher rate at 4.7%. The provincial rate for 1,500 - 2,499 gram babies was 3.2%, and again the rates were very similar among the various health authorities. This was also the case for the previous year. The provincial rate for very low birth weight for both years was less than 1% (0.8% in 2001/2002 and 0.7% in 2000/2001). With rates this low it is difficult to comment on clustering and trends.

Figure 12

Low and Very Low Birth Weight by Place of Residence for Health Authorities and Province, 2000/2001, 2001/2002



	FHA	IHA	NHA	VCHA	VIHA	Province
<500g (00/01)	0.2	0.1	0.2	0.1	0.1	0.1
<500g (01/02)	0.1	0.1	0.2	0.2	0.1	0.1
500-999g (00/01)	0.3	0.2	0.3	0.3	0.3	0.3
500-999g (01/02)	0.3	0.2	0.3	0.3	0.4	0.3
1000-1499g (00/01)	0.4	0.3	0.3	0.3	0.5	0.3
1000-1499g (01/02)	0.4	0.5	0.3	0.4	0.4	0.4
1500-2499g (00/01)	3.5	3.2	3.0	3.6	3.3	3.5
1500-2499g (01/02)	3.2	3.3	2.9	3.1	3.2	3.2

Place of Residence

Health Authority (HA) Legend	
FHA	Fraser
IHA	Interior
NHA	Northern
VCHA	Vancouver Coastal
VIHA	Vancouver Island

Table 12 Low and Very Low Birth Weight by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001

2001/2002

		<500g		500-999g		1000-1499g		1500-2499g		Total Low Birth Wt		Total NB		UNKN Wt	>=2500g
HA	HSDA	#	%	#	%	#	%	#	%	#	%	#	%	#	#
FHA	FE	2	0.1	5	0.2	13	0.5	88	3.1	108	3.8	2871	100.0	7	2756
	FN	6	0.1	17	0.3	17	0.3	166	3.0	206	3.8	5468	100.0	7	5255
	FS	7	0.1	28	0.4	28	0.4	236	3.5	299	4.4	6753	100.0	6	6448
Total		15	0.1	50	0.3	58	0.4	490	3.2	613	4.1	15092	100.0	20	14459
IHA	EK	0	0.0	1	0.2	2	0.3	16	2.6	19	3.1	606	100.0	0	587
	KB	0	0.0	0	0.0	4	0.7	20	3.4	24	4.1	590	100.0	1	565
	OK	2	0.1	5	0.2	9	0.4	76	3.0	92	3.7	2503	100.0	0	2411
	TC	3	0.2	3	0.2	10	0.6	69	3.8	85	4.7	1807	100.0	3	1719
Total		5	0.1	9	0.2	25	0.5	181	3.3	220	4.0	5506	100.0	4	5282
NHA	NE	0	0.0	0	0.0	2	0.2	29	3.4	31	3.7	843	100.0	3	809
	NI	4	0.3	5	0.3	4	0.3	44	2.8	57	3.6	1576	100.0	4	1515
	NW	3	0.3	4	0.4	4	0.4	27	2.7	38	3.9	982	100.0	6	938
Total		7	0.2	9	0.3	10	0.3	100	2.9	126	3.7	3401	100.0	13	3262
VCHA	NSCG	4	0.2	3	0.1	6	0.3	62	2.8	75	3.4	2191	100.0	1	2115
	RICH	3	0.2	3	0.2	4	0.3	42	2.7	52	3.4	1534	100.0	2	1480
	VANC	7	0.1	19	0.3	24	0.4	186	3.3	236	4.2	5601	100.0	4	5361
Total		14	0.2	25	0.3	34	0.4	290	3.1	363	3.9	9326	100.0	7	8956
VIHA	CVI	1	0.1	6	0.3	8	0.4	53	2.8	68	3.6	1898	100.0	2	1828
	NVI	0	0.0	6	1.1	0	0.0	16	2.8	22	3.9	570	100.0	0	548
	SVI	4	0.1	8	0.2	14	0.4	111	3.5	137	4.3	3205	100.0	5	3063
Total		5	0.1	20	0.4	22	0.4	180	3.2	227	4.0	5673	100.0	7	5439
BCUNSPEC		1	1.2	1	1.2	1	1.2	3	3.6	6	7.1	84	100.0	0	78
NONRES		1	0.6	6	3.9	1	0.6	5	3.2	13	8.4	154	100.0	0	141
Province		48	0.1	120	0.3	151	0.4	1249	3.2	1568	4.0	39236	100.0	51	37617

2000/2001

		<500g		500-999g		1000-1499g		1500-2499g		Total Low Birth Wt		Total NB		UNKN Wt	>=2500g
HA	HSDA	#	%	#	%	#	%	#	%	#	%	#	%	#	#
FHA	FE	1	0.0	1	0.0	13	0.5	87	3.2	102	3.7	2732	100.0	4	2626
	FN	11	0.2	18	0.3	16	0.3	201	3.7	246	4.5	5459	100.0	3	5210
	FS	11	0.2	28	0.4	24	0.4	236	3.5	299	4.4	6730	100.0	8	6423
Total		23	0.2	47	0.3	53	0.4	524	3.5	647	4.3	14921	100.0	15	14259
IHA	EK	1	0.2	1	0.2	0	0.0	16	2.5	18	2.8	648	100.0	0	630
	KB	0	0.0	1	0.2	1	0.2	15	2.5	17	2.8	601	100.0	0	584
	OK	2	0.1	8	0.3	6	0.2	86	3.4	102	4.0	2560	100.0	1	2457
	TC	2	0.1	4	0.2	8	0.4	66	3.6	80	4.3	1846	100.0	1	1765
Total		5	0.1	14	0.2	15	0.3	183	3.2	217	3.8	5655	100.0	2	5436
NHA	NE	6	0.7	1	0.1	1	0.1	18	2.2	26	3.2	817	100.0	0	791
	NI	1	0.1	3	0.2	6	0.4	59	3.7	69	4.3	1594	100.0	3	1522
	NW	0	0.0	6	0.6	5	0.5	27	2.6	38	3.7	1033	100.0	1	994
Total		7	0.2	10	0.3	12	0.3	104	3.0	133	3.9	3444	100.0	4	3307
VCHA	NSCG	1	0.0	3	0.1	4	0.2	67	2.8	75	3.2	2374	100.0	2	2297
	RICH	4	0.3	4	0.3	3	0.2	62	4.0	73	4.7	1549	100.0	5	1471
	VANC	9	0.2	19	0.3	20	0.3	223	3.9	271	4.7	5744	100.0	3	5470
Total		14	0.1	26	0.3	27	0.3	352	3.6	419	4.3	9667	100.0	10	9238
VIHA	CVI	1	0.1	7	0.4	6	0.3	61	3.4	75	4.2	1798	100.0	2	1721
	NVI	1	0.2	2	0.4	7	1.2	23	4.1	33	5.9	562	100.0	0	529
	SVI	6	0.2	8	0.3	13	0.4	95	3.0	122	3.9	3146	100.0	2	3022
Total		8	0.1	17	0.3	26	0.5	179	3.3	230	4.2	5506	100.0	4	5272
BCUNSPEC		0	0.0	0	0.0	0	0.0	4	8.0	4	8.0	50	100.0	1	45
NONRES		1	0.7	0	0.0	3	2.2	14	10.4	18	13.3	135	100.0	1	116
Province		58	0.1	114	0.3	136	0.3	1360	3.5	1668	4.2	39378	100.0	37	37673

Health Authority (HA)

FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
BCUNSPEC	BC residents with unknown postal code
NONRES	Non Resident of BC

Health Service Delivery Area (HSDA)

FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

Neonatal/Perinatal/Infant Mortality Rates by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2000/2001 (Refer to Data Table 13)

Infant mortality has been considered to be the single most comprehensive measure of health in a society (Canadian Institute for Health Information, 2003). In almost all developed countries, the rates of infant mortality have decreased dramatically over the last century, although the decline has been slower in recent years. According to the Canadian Perinatal Health Report (CPHR, 2000), infant mortality can be divided into three components:

- Early neonatal deaths (0 – 6 days)
- Late neonatal deaths (7 – 27 days)
- Post neonatal deaths (28 – 364 days)

Mortality rates can also be defined by utilising the underlying cause of death. Health Canada (2000), in the Canadian Perinatal Health Report, has also investigated temporal trends in cause-specific infant mortality rates. Important determinants of outcomes for newborns include maternal health and maternal care at delivery, as well as newborn care and infant environment. Estimates of preventable infant mortality among babies less that 1,500 grams may be largely attributable to sub-optimal maternal health (CPHR, 2000). Late neonatal deaths among infants with birth weights equal to or less than 1,500 grams may be due to sub-optimal maternal care or inadequate newborn care, including access to neonatal intensive care (CPHR, 2000). Late neonatal deaths among average weight babies are largely attributable to infant environment (ibid), rather than factors associated with pregnancy and birth.

The strong relationship between stillbirth and maternal factors (age, parity, nutritional status, smoking, inter-pregnancy interval) are well established and have been the focus of many epidemiological studies.

Analysis for the mortality report is by place of residence. The assumption underlying this analysis is that geographic location and associated demographic factors may have a greater impact on neonatal and perinatal mortality rates than place of delivery alone. **This report contains singleton pregnancies, deliveries and births. Late terminations are not included in the statistics.**

In 2000/2001, there were 39,175 singleton livebirths in BC. There were 203 stillbirths for a stillbirth rate of 5.2 per 1,000 births. Those residing in the Fraser HA in 2000/2001 had the highest stillbirth rate (5.6 per 1,000 births). Within the health service delivery areas, the Northeast had the highest stillbirth rate (9.8 per 1,000 births) compared to the Northern Interior (which is in the same health authority) with a stillbirth rate of only 1.9 per 1,000 births.

The provincial neonatal mortality rate was 2.4 per 1,000 births, the perinatal mortality rate was 7.0 per 1,000 births and the infant death rate was 3.4 per 1,000 births. Overall, the mortality rate was fairly consistent across the health authorities. The Vancouver Island HA had the highest neonatal mortality rate (2.9 per 1,000 births) and the highest infant death rate (4.5 per 1,000 births). The highest perinatal mortality rate was found in the Fraser HA at 7.4 per 1,000 births. The lowest rate for neonatal mortality was in the Interior HA at 2.0 per 1,000 births. The lowest infant death rate was found in the Vancouver Coastal HA at 2.7 per 1,000 births.

Table 13

Neonatal/Perinatal/Infant Mortality by Place of Residence for Health Service Delivery Areas, Health Authorities and Province, 2000/2001

		2000/2001												
HA	HSDA	Total Birth	Total Still Birth	Total Death	Total Live Birth	Still Birth Rate	END	LND	TND	PND	NMR	PMR	IDR	NSR
FHA	FE	2735	8	4	2727	2.9	2	1	3	1	1.1	3.7	1.5	998.9
	FN	5457	33	16	5424	6.0	10	2	12	4	2.2	7.9	2.9	997.8
	FS	6733	42	28	6691	6.2	15	4	19	9	2.8	8.5	4.2	997.2
Total		**14925**	**83**	**48**	**14842**	**5.6**	**27**	**7**	**34**	**14**	**2.3**	**7.4**	**3.2**	**997.7**
IHA	EK	648	2	3	646	3.1	2	0	2	1	3.1	6.2	4.6	996.9
	KB	601	2	1	599	3.3	0	1	1	0	1.7	3.3	1.7	998.3
	OK	2560	14	8	2546	5.5	3	2	5	3	2.0	6.6	3.1	998.0
	TC	1847	9	7	1838	4.9	2	1	3	4	1.6	6.0	3.8	998.4
Total		**5656**	**27**	**19**	**5629**	**4.8**	**7**	**4**	**11**	**8**	**2.0**	**6.0**	**3.4**	**998.0**
NHA	NE	818	8	3	810	9.8	2	0	2	1	2.5	12.2	3.7	997.5
	NI	1592	3	7	1589	1.9	4	0	4	3	2.5	4.4	4.4	997.5
	NW	1033	6	3	1027	5.8	2	1	3	0	2.9	7.7	2.9	997.1
Total		**3443**	**17**	**13**	**3426**	**4.9**	**8**	**1**	**9**	**4**	**2.6**	**7.3**	**3.8**	**997.4**
VCHA	NSCG	2377	10	3	2367	4.2	2	0	2	1	0.8	5.0	1.3	999.2
	RICH	1550	7	10	1543	4.5	9	0	9	1	5.8	10.3	6.5	994.2
	VANC	5742	27	13	5715	4.7	9	2	11	2	1.9	6.3	2.3	998.1
Total		**9669**	**44**	**26**	**9625**	**4.6**	**20**	**2**	**22**	**4**	**2.3**	**6.6**	**2.7**	**997.7**
VIHA	CVI	1797	12	9	1785	6.7	4	1	5	4	2.8	8.9	5.0	997.2
	NVI	560	5	4	555	8.9	2	1	3	1	5.4	12.5	7.2	994.6
	SVI	3148	12	12	3136	3.8	4	4	8	4	2.6	5.1	3.8	997.4
Total		**5505**	**29**	**25**	**5476**	**5.3**	**10**	**6**	**16**	**9**	**2.9**	**7.1**	**4.5**	**997.1**
BCUNSPEC		**47**	**0**	**1**	**47**	**0.0**	**0**	**1**	**1**	**0**	**21.3**	**0.0**	**21.3**	**978.7**
NONRES		**133**	**3**	**0**	**130**	**22.6**	**0**	**0**	**0**	**0**	**0.0**	**22.6**	**0.0**	**1000.0**
Total		**39378**	**203**	**132**	**39175**	**5.2**	**72**	**21**	**93**	**39**	**2.4**	**7.0**	**3.4**	**997.6**

Death information supplemented from the BC Vital Statistics Agency

Health Authority (HA)	
FHA	Fraser HA
IHA	Interior HA
NHA	Northern HA
VCHA	Vancouver Coastal HA
VIHA	Vancouver Island HA
PHSA	Provincial Health Services Authority
BCUNSPEC	BC residents with unknown postal code
NONRES	Non Resident of BC

Health Service Delivery Area (HSDA)	
FE	Fraser East
FN	Fraser North
FS	Fraser South
EK	East Kootenay
KB	Kootenay Boundary
OK	Okanagan
TC	Thompson Cariboo Shuswap
NE	Northeast
NI	Northern Interior
NW	Northwest
NSCG	Northshore/Coast Garibaldi
RICH	Richmond
VANC	Vancouver
CVI	Central Vancouver Island
NVI	Northern Vancouver Island
SVI	Southern Vancouver Island

Stillbirth Rate = (Total Stillbirths/Total Births) x 1000
Neonatal Mortality Rate = (Total Neonatal Deaths/Live Births) x 1000
Perinatal Mortality Rate = ((Total Stillbirths + Total Early Neonatal Deaths)/Total Births) x 1000
Infant Death Rate = ((Total Neonatal Deaths + Post Neonatal Deaths)/Total Live Births) x 1000
Neonatal Survival Rate = ((Total Live Births - Total Neonatal Deaths)/Total Births) x 1000
Note: Late Terminations are excluded

END	Early Neonatal Deaths (< 7 days)
LND	Late Neonatal Deaths (7-27 days)
TND	Total Neonatal Deaths (<28 days)
PND	Post Neonatal Deaths (28-364 days)
NMR	Neonatal Mortality Rate
PMR	Perinatal Mortality Rate
IDR	Infant Death Rate
NSR	Neonatal Survival Rate

Neonatal/Perinatal/Infant Mortality Rates by Maternal Age, 2000/2001

(Refer to Data Table 14)

There are many variables that affect the outcome of a pregnancy, some of which involve a greater degree of risk for the woman and/or her infant. Maternal age less than 20 years and greater than 34 years is considered to carry an increased risk for the pregnancy (Leyland & Boddy, 1990). However, the rate of births to older mothers (greater than 35 years of age) has shown a steady increase in Canada over the past 20 years due to the well-documented shift in women delaying childbirth to later years or taking advantage of reproductive technologies to achieve pregnancy later in life.

Mortality data are provincial and based on singleton pregnancies, deliveries and births. It is also important to note that late terminations have not been included in the data, therefore this will underestimate the actual stillbirth rate.

The stillbirth rate by maternal age represents a modified bell curve. The highest rates are found among the youngest and oldest age groupings for maternal age. Again, these findings are not unexpected, as it is known that the greatest complications are often associated with very young and older maternal ages. The highest stillbirth rate was 71.4 per 1,000 births and was found among the maternal age group less than 15. However, the low number of births in this category overall leads to variability that has no real meaning. The rate declined to 4.6 per 1,000 births for two age groups: 20 - 24 and 25 - 29. The rate started to increase with the next age groupings and then reached a high of 9.5 per 1,000 births for the 40 - 44 age group.

The neonatal, perinatal and infant death rates had no consistent relationship across age groups. The overall neonatal mortality rate was 2.4 per 1,000 births, the infant death rate was 3.4 per 1,000 births and the perinatal mortality rate was 7.0 per 1,000 births. Notably the perinatal mortality rate for the 40 - 44 age group, which was 12.1 per 1,000 births, was much higher than the other age groups, which ranged from 6.4 per 1,000 births (25 - 29 age group) to 7.2 per 1,000 births (20 - 24 age group).

Table 14 **Neonatal/Perinatal/Infant Mortality by Maternal Age, 2000/2001**

	2000/2001												
Age	Total Birth	Total Still Birth	Total Death	Total Live Birth	Still Birth Rate	END	LND	TND	PND	NMR	PMR	IDR	NSR
<15	14	1	0	13	71.4	0	0	0	0	0.0	0.0	0.0	1000.0
15-19	1808	9	7	1799	5.0	3	0	3	4	1.7	6.6	3.9	998.3
20-24	6269	29	31	6240	4.6	16	3	19	12	3.0	7.2	5.0	997.0
25-29	11545	53	39	11492	4.6	21	5	26	13	2.3	6.4	3.4	997.7
30-34	12199	63	34	12136	5.2	21	7	28	6	2.3	6.9	2.8	997.7
35-39	6351	37	17	6314	5.8	8	5	13	4	2.1	7.1	2.7	997.9
40-44	1154	11	4	1143	9.5	3	1	4	0	3.5	12.1	3.5	996.5
45-49	37	0	0	37	0.0	0	0	0	0	0.0	0.0	0.0	1000.0
>=50	1	0	0	1	0.0	0	0	0	0	0.0	0.0	0.0	1000.0
Total	**39378**	**203**	**132**	**39175**	**5.2**	**72**	**21**	**93**	**39**	**2.4**	**7.0**	**3.4**	**997.6**

Death information supplemented from the BC Vital Statistics Agency

Stillbirth Rate = (Total Stillbirths/Total Births) x 1000
Neonatal Mortality Rate = (Total Neonatal Deaths/Live Births) x 1000
Perinatal Mortality Rate = ((Total Stillbirths + Total Early Neonatal Deaths)/Total Births) x 1000
Infant Death Rate = ((Total Neonatal Deaths + Post Neonatal Deaths)/Total Live Births) x 1000
Neonatal Survival Rate = ((Total Live Births - Total Neonatal Deaths)/Total Births) x 1000
Note: Late Terminations are excluded

END	Early Neonatal Deaths (< 7 days)
LND	Late Neonatal Deaths (7-27 days)
TND	Total Neonatal Deaths (<28 days)
PND	Post Neonatal Deaths (28-364 days)
NMR	Neonatal Mortality Rate
PMR	Perinatal Mortality Rate
IDR	Infant Death Rate
NSR	Neonatal Survival Rate

Neonatal/Perinatal/Infant Mortality Rates by Birth Weight, 2000/2001

(Refer to Data Table 15)

Preterm birth is an important determinant of perinatal mortality and survival rates show a positive correlation with fetal growth. The provincially defined limit on viability is a birth weight of 500 grams, (BC Vital Statistics Agency, 2002) but advances in obstetrics and neonatal care have led to the survival of some extremely immature low birth-weight infants. It is not unexpected to find the highest mortality rates are associated with infants in the lowest weight category (<500 grams).

Across Canada, the perinatal death rates are highest in the Yukon and the North West Territories, with BC in a comparable rate to Nova Scotia. The neonatal death rate is lowest in Prince Edward Island, with BC and Alberta recording the second lowest rates. Infant death rates in BC are again comparable with Alberta, second only to Nova Scotia and Newfoundland (CPHR, 2000).

Analysis is at the provincial level and is based on singleton pregnancies, deliveries and births. It is also important to note that late terminations have not been included in the data. Data analysis has not been completed for the unknown birth weight category.

The highest stillbirth rate (637.9 per 1,000 births) was found among the lowest birth weight group (<500 grams). The stillbirth rate declined with each successive weight group to a low of 0.8 per 1,000 births for the 3,500 - 4,499 gram group, which is considered normal birth weight.

The pattern for the neonatal, perinatal and infant death rates in BC in 2000/2001 is similar to Canadian statistics. The rates show a continuous decline from the lowest birth weight group to the highest birth weight group.

Table 15 **Neonatal/Perinatal/Infant Mortality by Birth Weight, 2000/2001**

	2000/2001												
Birth Weight	Total Birth	Total Still Birth	Total Death	Total Live Birth	Still Birth Rate	END	LND	TND	PND	NMR	PMR	IDR	NSR
<500	58	37	20	21	637.9	20	0	20	0	952.4	982.8	952.4	47.6
500-999	114	34	32	80	298.2	24	5	29	3	362.5	508.8	400.0	637.5
1000-1499	136	17	8	119	125.0	6	1	7	1	58.8	169.1	67.2	941.2
1500-2499	1360	36	20	1324	26.5	7	6	13	7	9.8	31.6	15.1	990.2
2500-3499	18896	33	32	18863	1.7	8	5	13	19	0.7	2.2	1.7	999.3
3500-4499	17779	14	16	17765	0.8	3	4	7	9	0.4	1.0	0.9	999.6
>=4500	998	1	0	997	1.0	0	0	0	0	0.0	0.0	0.0	1000.0
Unknown	37	31	4	6	837.8	4	0	4	0	666.7	945.9	666.7	333.3
Total	**39378**	**203**	**132**	**39175**	**5.2**	**72**	**21**	**93**	**39**	**2.4**	**7.0**	**3.4**	**997.6**

Death information supplemented from the BC Vital Statistics Agency

Stillbirth Rate = (Total Stillbirths/Total Births) x 1000
Neonatal Mortality Rate = (Total Neonatal Deaths/Live Births) x 1000
Perinatal Mortality Rate = ((Total Stillbirths + Total Early Neonatal Deaths)/Total Births) x 1000
Infant Death Rate = ((Total Neonatal Deaths + Post Neonatal Deaths)/Total Live Births) x 1000
Neonatal Survival Rate = ((Total Live Births - Total Neonatal Deaths)/Total Births) x 1000
Note: Late Terminations are excluded

END	Early Neonatal Deaths (< 7 days)
LND	Late Neonatal Deaths (7-27 days)
TND	Total Neonatal Deaths (<28 days)
PND	Post Neonatal Deaths (28-364 days)
NMR	Neonatal Mortality Rate
PMR	Perinatal Mortality Rate
IDR	Infant Death Rate
NSR	Neonatal Survival Rate

SECTION IV

IN FOCUS - INDUCTION OF LABOUR

SECTION IV
In Focus – Induction of Labour

Definition
Induction of labour is the artificial initiation of uterine contractions, resulting in the birth of the baby. It is indicated when the potential risks of continuing a pregnancy outweigh the benefits.

Indications
There are diverse indications leading to the decision to induce labour. Listed below are some indications for induction:

Post-term pregnancy	Women with well-documented gestational age and uncomplicated pregnancies which have progressed beyond 41 weeks
Diabetes in pregnancy	Women who have diabetes may be induced prior to the due date
Pre-labour rupture of membranes	Women with premature rupture of the membranes at term (≥ 37 wks)
Maternal condition	Where the health status of the mother is of concern to the physician, e.g. pregnancy-induced hypertension (PIH)
Fetal condition	Where the health status of the fetus is of concern to the physician, e.g. macrosomia, intrauterine fetal compromise, or lack of fetal growth
Logistics	Maternal requests for induction prior to 41 weeks or other health care delivery reasons

Place of Induction
Depending on the reason for the decision to induce and the health of the mother and fetus, the place of induction can vary from the pre-delivery site to a high risk obstetric unit. This choice is dictated by the amount of monitoring and expertise required to manage the delivery and postpartum care.

Outcome of Induction
The outcomes of induction of labour are both maternal and fetal and can be classified as "good" and/or "poor" outcomes. For the mother, a good outcome would be a vaginal birth within a "normal" period of time. Poor outcomes would include the need for caesarean section or maternal morbidity such as postpartum haemorrhage or rupture of the uterus. For the fetus, a good outcome would be a healthy, normal baby. The adverse outcomes would include neonatal morbidity such as hypoxic ischemic encephalopathy and neurological compromise.

Data Limitations
Although one of the clinical indications for induction is multiple fetuses, the data in this section are reported only for singleton pregnancies, deliveries and births. In addition, the categories of "other" and "unknown" have been excluded from the statistics. This will lead to a potential under-reporting of inductions. However, this is considered to be of minimal impact, given the small number of inductions contained in these categories.

Background Information
Before reviewing the results from British Columbia, it is worth looking at the rates of induction from other jurisdictions across Canada and internationally in order to gain a perspective of induction practices against which to compare the BC results.

Overall, rates of induction in Canada and other countries with similar health care systems range, for the most part, between 15% and 25% (these rates have varied from year to year and from area to area). In Canada, for example, the rates vary from province to province, with a low of 10.4% in the Northwest Territories (in 1997) to a high of 22.1% in Alberta (Canadian Perinatal Health Report, 2000), although a report from Alberta tagged it as high as 27%. In the same year, the overall Canadian rate was 18.5% (ibid).

More recently, the United Kingdom statistics have shown a higher rate (Royal College of Obstetricians and Gynecologists, 2001). In 2001, the rate of induction in England was 21.5%, while, for the same year, the rate in Scotland was 27.3%, although both countries are part of the National Health Service (ibid). Highly populated areas of South England showed rates between 20% and 30% while North England reported more variability, with rates ranging between 9% and 30%. In addition to variations across geographic areas, there has also been noticeable variation over time. From the 1980s to the late 1990s, the rates in both Scotland and England dropped throughout the eighties and then slowly returned to the same rate in the 1990s and, in some cases, to even higher rates.

The reports do not allow for an examination of the reasons for the variations, hence it is not possible to tell if these variations are due to demographics, clinical practice or logistics. To be able to tease out the contributing factors would require a more detailed set of reports with linked data, not usually found in administrative databases.

ANALYSIS OF INDUCTION OF LABOUR IN BRITISH COLUMBIA, 2001/2002, 2000/2001

Total Inductions in BC 2001/2002, 2000/2001

The number of inductions of labour performed on singleton pregnancies throughout the province was 8,821 in 2001/2002 and 8,358 in the year 2000/2001. Total births were 39,236 and 39,378 respectively, leading to overall induction rates of 22.5% in 2001/2002 and 21.2% in 2000/2001, a slight but non-significant increase.

Breakdown by Health Authority

(Refer to Data Table 6 – Induction of Labour by Place of Delivery for Health Service Delivery Areas, Health Authorities and Province, 2001/2002, 2000/2001 on page 17).

Excluded from this specific analysis is the Provincial Health Service Authority (PHSA) and births classified as Home Births. The induction rates were relatively stable across the four health authorities. For the year 2001/2002, the three health authorities in the south of the province, Fraser, Interior and Vancouver Coastal recorded rates of 25.2%, 23.3% and 20.8% respectively, while the Northern HA recorded a rate of 20.4%. In 2000/2001, the rates were virtually unchanged at approximately 23% in the south and 18% in the north. The explanation of the slightly lower rate in the Northern HA could be that the resources needed to support an induction are not as readily available as in the more populous areas.

Breakdown by Individual Health Service Delivery Areas within the Health Authorities

Within the health authorities, there was some variation in induction rates that appeared to reflect the size of the populations within the areas. However, the differences were not large. As might be anticipated, the comparison between years did not show any marked change.

Indications for Induction by Parity

Table 16 Indications for Induction by Parity 2001/2002, 2000/2001

2001/2002				
Indication	Parity >=1		Nullipara	
	#	%	#	%
Post Term Pregnancy	1589	38.4	1871	39.9
Premature ROM	640	15.5	1044	22.3
Maternal Condition	953	23.0	1068	22.8
Fetal Condition	342	8.2	372	7.9
Logistics	92	1.7	18	0.4

2000/2001				
Indication	Parity >=1		Nullipara	
	#	%	#	%
Post Term Pregnancy	1468	37.6	1818	40.8
Premature ROM	677	17.3	996	22.3
Maternal Condition	884	22.6	1061	23.8
Fetal Condition	328	8.3	350	7.8
Logistics	89	2.2	15	0.3

Indications for Induction by Parity (Nullipara or Parity ≥ 1)

The indications leading to induction are summarised (in Table 17) within the nullipara and parity ≥ 1 population. The percentages are the proportion of inductions which are attributable to each indication.

For 2001/2002, there were a total of 21,785 parity ≥ 1women, 4,136 of which were induced. For 2001/2002, there were 17,451 nulliparous women with 4,685 inductions. For 2001/2002, there was a total of 21,772 parity ≥ 1 women who delivered and 3,905 of these women were induced. For 2000/2001, there were 17,606 nulliparous women and 4,453 inductions.

In 2001/2002, 18.9% of the parity ≥ 1 population was induced, compared to 26.8% of the nullipara. This was a small increase overall from 2000/2001, when 17.9% of the parity ≥ 1 population was induced, versus 25.3% of the nullipara. **Of note is the larger rate of induction for nulliparous women, i.e. approximately 1 in 4 nulliparous pregnancies are being induced.**

OUTCOMES OF INDUCTION OF LABOUR

One of the more significant outcomes of a failed induction is a C/section. The data in the following graphs have been stratified by indication for induction (vertical axis) against reason for proceeding to C/Section (horizontal axis). The indications leading to induction are further summarized within nullipara and parity ≥ 1 populations. It should be noted that some of these data predate the findings of Hannah et al (2000) in their report titled, Planned Caesarean Section vs. Planned Vaginal Birth for Breech Presentation at Term. Therefore, a number of inductions were performed on breech presentations of the fetus.

For nulliparous women who were induced and required a C/Section, the most prevalent indication for C/Section delivery was dystocia/cephalopelvic disproportion (CPD) at 50.2% in 2001/2002, 51.9% in 2000/200 1, followed by fetal distress at 25.4% in 2001/2002 and 26.7% in 2001/2002.

Similarly, for parity ≥ 1 women who were induced and required a C/Section delivery, the most prevalent indication for C/Section was dystocia/CPD at 33.7% in 2001/2002, 33.3% in 2000/2001, followed by fetal distress at 27.3% in 2001/2002 and 31.0% in 2000/2001.

Perhaps the most striking variance can be noted in the percentages of induced nullipara who proceeded to C/Section, as compared with the parity ≥ 1. In 2001/2002, 36.6% of induced nullipara went on to C/Section, versus 9.6% of parity ≥ 1. In 2000/2001, the numbers were slightly lower for nullipara, at 34.3% versus a rate of 10.1% for parity ≥ 1. In other words, induction is unsuccessful in more than one-third of nulliparous women in BC.

Outcomes of Induction by Parity, 2001/2002, 2000/2001

2001/2002

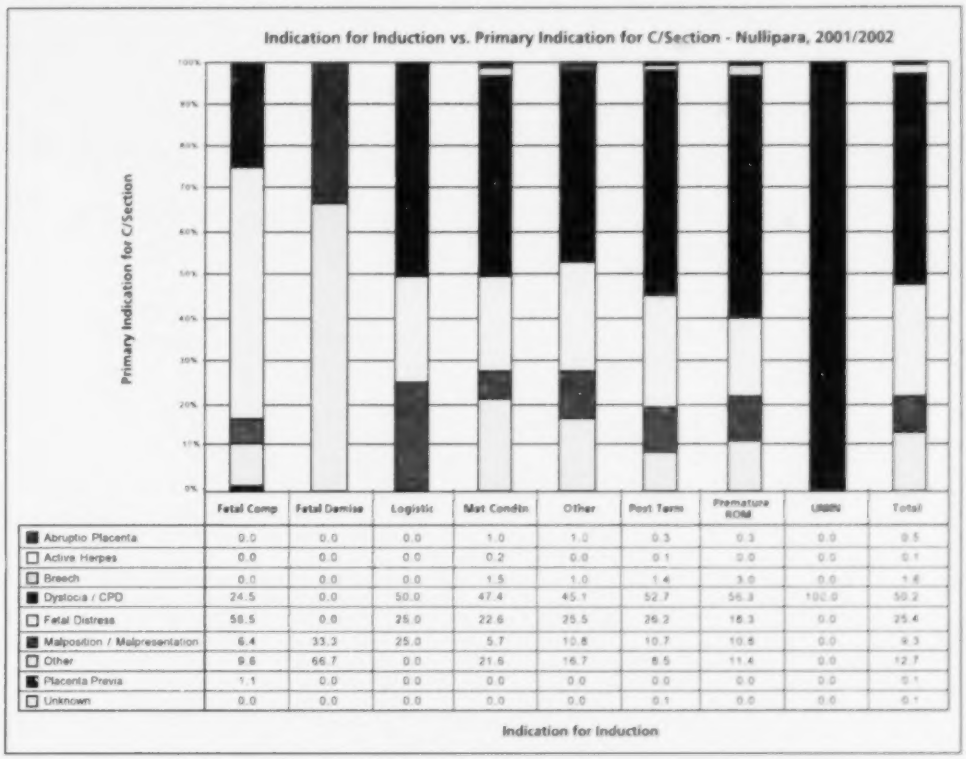
			Fetal Comp		Fetal Demise		Logistic		Mat Condtn		Other		Post Term		Premature ROM		UNKN		Total	
Parity	Method of Delivery	Indication for C/Section	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
≥1	C/Section	Abruptio Placenta	3	7.7	0	0.0	0	0.0	2	2.2	2	4.1	1	0.7	2	3.6	0	0.0	10	2.5
		Active Herpes	0	0.0	0	0.0	0	0.0	1	1.1	0	0.0	0	0.0	1	1.8	0	0.0	2	0.5
		Breech	1	2.6	1	50.0	0	0.0	3	3.4	2	4.1	8	5.4	2	3.6	0	0.0	17	4.3
		Dystocia / CPD	8	20.5	0	0.0	2	33.3	29	32.6	16	32.7	57	38.3	21	37.5	0	0.0	133	33.7
		Fetal Distress	20	51.3	0	0.0	1	16.7	23	25.8	6	12.2	44	29.5	13	23.2	1	20.0	108	27.3
		Malposition / Malpresentation	0	0.0	0	0.0	0	0.0	8	9.0	7	14.3	18	12.1	5	8.9	0	0.0	38	9.6
		Other	6	15.4	1	50.0	3	50.0	18	20.2	11	22.4	18	12.1	11	19.6	3	60.0	71	18.0
		Placenta Previa	1	2.6	0	0.0	0	0.0	2	2.2	0	0.0	0	0.0	0	0.0	0	0.0	3	0.8
		Repeat C/Section	0	0.0	0	0.0	0	0.0	3	3.4	5	10.2	3	2.0	0	0.0	1	20.0	12	3.0
		Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.8	0	0.0	1	0.3
	Total C/Section		39	100.0	2	100.0	6	100.0	89	100.0	49	100.0	149	100.0	56	100.0	5	100.0	395	100.0
Nullipara	C/Section	Abruptio Placenta	0	0.0	0	0.0	0	0.0	4	1.0	1	1.0	2	0.3	1	0.3	0	0.0	8	0.5
		Active Herpes	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	1	0.1	0	0.0	0	0.0	2	0.1
		Breech	0	0.0	0	0.0	0	0.0	6	1.5	1	1.0	11	1.4	10	3.0	0	0.0	28	1.6
		Dystocia / CPD	23	24.5	0	0.0	2	50.0	191	47.4	46	45.1	405	52.7	188	56.3	5	100.0	860	50.2
		Fetal Distress	55	58.5	0	0.0	1	25.0	91	22.6	26	25.5	201	26.2	61	18.3	0	0.0	435	25.4
		Malposition / Malpresentation	6	6.4	1	33.3	1	25.0	23	5.7	11	10.8	82	10.7	36	10.8	0	0.0	160	9.3
		Other	9	9.6	2	66.7	0	0.0	87	21.6	17	16.7	65	8.5	38	11.4	0	0.0	218	12.7
		Placenta Previa	1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
		Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	1	0.1
	Total C/Section		94	100.0	3	100.0	4	100.0	403	100.0	102	100.0	768	100.0	334	100.0	5	100.0	1713	100.0

2000/2001

			Fetal Comp		Fetal Demise		Logistic		Mat Condtn		Other		Post Term		Premature ROM		UNKN		Total	
Parity	Method of Delivery	Indication for C/Section	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
≥1	C/Section	Abruptio Placenta	0	0.0	0	0.0	0	0.0	4	3.9	3	7.1	2	1.2	0	0.0	0	0.0	9	2.3
		Active Herpes	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3
		Breech	0	0.0	0	0.0	0	0.0	3	2.9	1	2.4	6	3.6	2	4.2	0	0.0	12	3.1
		Dystocia / CPD	5	18.5	0	0.0	0	0.0	25	24.3	12	28.6	70	42.4	17	35.4	2	33.3	131	33.3
		Fetal Distress	17	63.0	0	0.0	1	50.0	30	29.1	11	26.2	45	27.3	16	33.3	2	33.3	122	31.0
		Malposition / Malpresentation	2	7.4	0	0.0	0	0.0	8	7.8	5	11.9	18	10.9	5	10.4	0	0.0	38	9.7
		Other	3	11.1	0	0.0	1	50.0	25	24.3	10	23.8	20	12.1	7	14.6	1	16.7	67	17.0
		Placenta Previa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
		Repeat C/Section	0	0.0	0	0.0	0	0.0	7	6.8	0	0.0	4	2.4	1	2.1	1	16.7	13	3.3
		Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total C/Section		27	100.0	0	0.0	2	100.0	103	100.0	42	100.0	165	100.0	48	100.0	6	100.0	393	100.0
Nullipara	C/Section	Abruptio Placenta	1	1.1	0	0.0	0	0.0	7	1.7	1	1.5	3	0.5	1	0.3	0	0.0	13	0.9
		Active Herpes	1	1.1	0	0.0	0	0.0	2	0.5	0	0.0	0	0.0	0	0.0	0	0.0	3	0.2
		Breech	1	1.1	0	0.0	0	0.0	5	1.2	1	1.5	7	1.1	2	0.7	0	0.0	16	1.0
		Dystocia / CPD	26	29.9	0	0.0	1	25.0	185	45.3	36	55.4	374	56.2	167	57.6	3	60.0	792	51.9
		Fetal Distress	51	58.6	0	0.0	0	0.0	113	27.7	9	13.8	172	25.9	60	20.7	2	40.0	407	26.7
		Malposition / Malpresentation	1	1.1	0	0.0	2	50.0	28	6.9	4	6.2	50	7.5	32	11.0	0	0.0	117	7.7
		Other	6	6.9	2	100.0	1	25.0	67	16.4	14	21.5	58	8.7	28	9.7	0	0.0	176	11.5
		Placenta Previa	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0	0	0.0	2	0.1
		Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total C/Section		87	100.0	2	100.0	4	100.0	408	100.0	65	100.0	665	100.0	290	100.0	5	100.0	1526	100.0

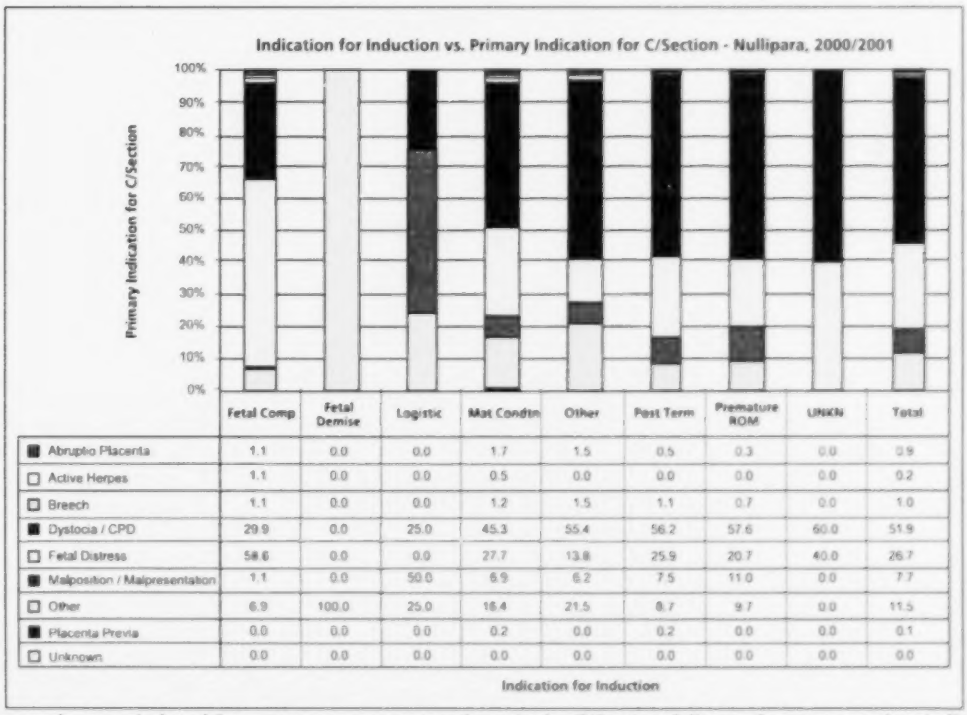
C/Section Deliveries by Indication for Induction (2001/2002, 2000/2001) – Nullipara

Figure 13


Indication for Induction vs. Primary Indication for C/Section - Nullipara, 2001/2002
Primary Indication for C/Section
Indication for Induction

	Fetal Comp	Fetal Demise	Logistic	Mat Condtn	Other	Post Term	Premature ROM	UNKN	Total
Abruptio Placenta	0.0	0.0	0.0	1.0	1.0	0.3	0.3	0.0	0.5
Active Herpes	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.1
Breech	0.0	0.0	0.0	1.5	1.0	1.4	3.0	0.0	1.6
Dystocia / CPD	24.5	0.0	50.0	47.4	45.1	52.7	56.3	100.0	50.2
Fetal Distress	58.5	0.0	25.0	22.6	25.5	26.2	16.3	0.0	25.4
Malposition / Malpresentation	6.4	33.3	25.0	5.7	10.8	10.7	10.6	0.0	9.3
Other	9.6	66.7	0.0	21.6	16.7	8.5	11.4	0.0	12.7
Placenta Previa	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Unknown	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1

Figure 14

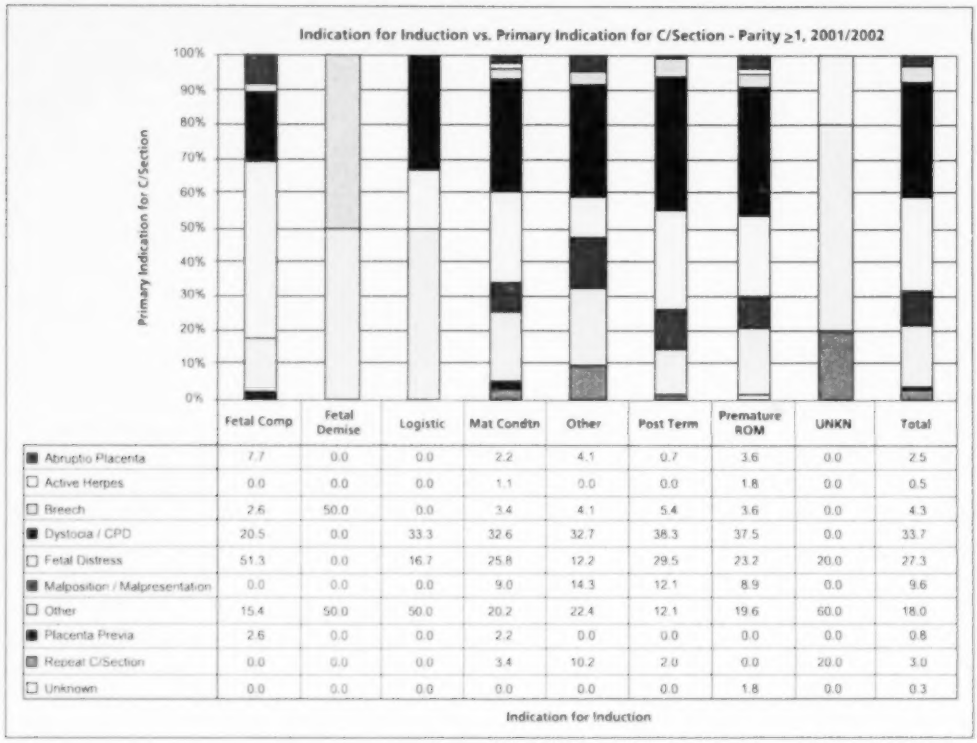


	Fetal Comp	Fetal Demise	Logistic	Mat Condtn	Other	Post Term	Premature ROM	UNKN	Total
Abruptio Placenta	1.1	0.0	0.0	1.7	1.5	0.5	0.3	0.0	0.9
Active Herpes	1.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.2
Breech	1.1	0.0	0.0	1.2	1.5	1.1	0.7	0.0	1.0
Dystocia / CPD	29.9	0.0	25.0	45.3	55.4	56.2	57.6	60.0	51.9
Fetal Distress	58.6	0.0	0.0	27.7	13.8	25.9	20.7	40.0	26.7
Malposition / Malpresentation	1.1	0.0	50.0	6.9	6.2	7.5	11.0	0.0	7.7
Other	6.9	100.0	25.0	16.4	21.5	8.7	9.7	0.0	11.5
Placenta Previa	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.1
Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

For nulliparous women who were induced for post-term pregnancy and required a C/Section delivery, the most prevalent indication for C/Section was dystocia/CPD (2001/2002: 52.7%, 2000/2001: 56.2%) followed by fetal distress (2001/2002: 26.2%, 2000/2001: 25.9%).

C/Section Deliveries by Indication for Induction (2001/2002, 2000/2001) – Parity ≥ 1

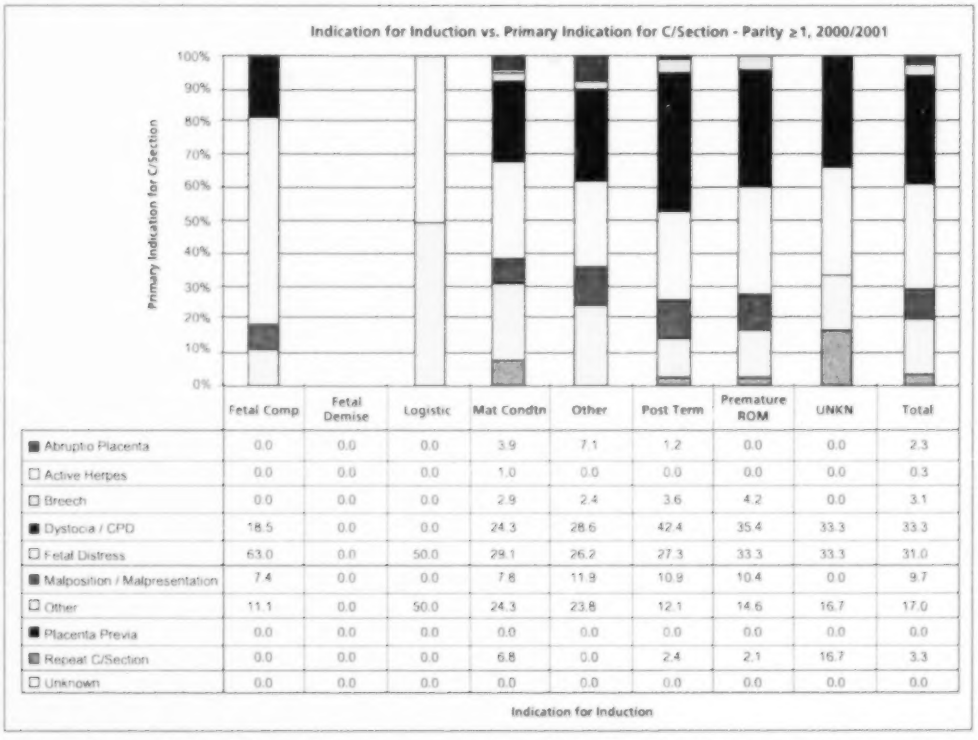
Figure 15



	Fetal Comp	Fetal Demise	Logistic	Mat Condtn	Other	Post Term	Premature ROM	UNKN	Total
Abruptio Placenta	7.7	0.0	0.0	2.2	4.1	0.7	3.6	0.0	2.5
Active Herpes	0.0	0.0	0.0	1.1	0.0	0.0	1.8	0.0	0.5
Breech	2.6	50.0	0.0	3.4	4.1	5.4	3.6	0.0	4.3
Dystocia / CPD	20.5	0.0	33.3	32.6	32.7	38.3	37.5	0.0	33.7
Fetal Distress	51.3	0.0	16.7	25.8	12.2	29.5	23.2	20.0	27.3
Malposition / Malpresentation	0.0	0.0	0.0	9.0	14.3	12.1	8.9	0.0	9.6
Other	15.4	50.0	50.0	20.2	22.4	12.1	19.6	60.0	18.0
Placenta Previa	2.6	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.8
Repeat C/Section	0.0	0.0	0.0	3.4	10.2	2.0	0.0	20.0	3.0
Unknown	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.3

Indication for Induction

Figure 16



	Fetal Comp	Fetal Demise	Logistic	Mat Condtn	Other	Post Term	Premature ROM	UNKN	Total
Abruptio Placenta	0.0	0.0	0.0	3.9	7.1	1.2	0.0	0.0	2.3
Active Herpes	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3
Breech	0.0	0.0	0.0	2.9	2.4	3.6	4.2	0.0	3.1
Dystocia / CPD	18.5	0.0	0.0	24.3	28.6	42.4	35.4	33.3	33.3
Fetal Distress	63.0	0.0	50.0	29.1	26.2	27.3	33.3	33.3	31.0
Malposition / Malpresentation	7.4	0.0	0.0	7.8	11.9	10.9	10.4	0.0	9.7
Other	11.1	0.0	50.0	24.3	23.8	12.1	14.6	16.7	17.0
Placenta Previa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repeat C/Section	0.0	0.0	0.0	6.8	0.0	2.4	2.1	16.7	3.3
Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Indication for Induction

For parity ≥ 1women who were induced for post-term pregnancy and required a C/Section delivery, the most prevalent indication for C/Section was dystocia/CPD (2001/2002: 33.7%, 2000/2001: 33.3%) followed by fetal distress (2001/2002: 27.3%, 2000/2001: 31.0%).

SECTION V

REFERENCES AND APPENDICES

REFERENCES

American Academy of Paediatrics (1997). *Breastfeeding and the use of human milk (RE9729)*, 100, 1035-39.

Behrman, R.E. & Shiono, P.H. (1997). Neonatal Risk Factors. In. Fanhroff, A.A. & Martin, R.J. (Eds.), *Neonatal-Perinatal Medicine: Diseases of the Fetus and Infant*, 1, Mosby Publications.

Bobak, I., Lowdermilk, D., Jensen, M. & Perry, S. (1997). *Maternity Nursing*. Mosby Publications.

Breastfeeding Committee for Canada (BCC) (2002). *Breastfeeding statement of the breastfeeding committee of Canada*. BCC. <http://www.breastfeedingcanada.ca/pdf/webdoc5.pdf >

British Columbia Reproductive Care Program (BCRCP) (1997). Fetal health surveillance in labour. *BCRCP Guidelines*. <http://www.rcp.gov.bc.ca/Guidelines/Obstetrics/Master[1].OB6.FHSinLabour.July1997.pdf>

British Columbia Reproductive Care Program (BCRCP) (1999). Induction of labour. *BCRCP Guidelines*. <http://www.rcp.gov.bc.ca/Guidelines/Obstetrics/Master[1].OB1.Induction.April99.pdf>

British Columbia Reproductive Care Program (BCRCP) (1999). Perinatal mortality review process. *BCRCP Guidelines*. <http://www.rcp.gov.bc.ca/Guidelines/Perinatal_Mortality/Master[1].PM1.ReviewProcess.April99.pdf>

British Columbia Reproductive Care Program (BCRCP) (2000). *Report on the findings of a consensus conference on obstetrical services in rural or remote communities*. Vancouver, BCRCP.

British Columbia Reproductive Care Program (BCRCP) (2001). Preterm labour. *BCRCP Guidelines*. <http://www.rcp.gov.bc.ca/Guidelines/Obstetrics/December_24th,2001/Master.OB2A.PTL.October.PDF>

British Columbia Reproductive Care Program (BCRCP) (2001). *Report on the 1999 perinatal services survey*. Vancouver, BCRCP.

British Columbia Reproductive Care Program (BCRCP) (2002). *Report on the findings of a consensus symposium on the provision of postpartum services in British Columbia*. Vancouver, BCRCP.

British Columbia Vital Statistics Agency. *British Columbia Vital Statistics Annual Report (2002)*. <http://www.vs.gov.bc.ca>

Canadian Institute for Health Information (2003). *Health Care in Canada*. Ottawa, CIHI.

Canadian Institute of Child Health (CICH). <http://www.cich.ca/>

Canadian Paediatric Society (1998). *Nutrition for healthy term infants*. Ottawa, Ministry of Public Works and Government Services.

Edwards, N., Sims-Jones, N. & Hotz, S. (1996). *Pre and postnatal smoking: A review of the literature*. Ottawa, Health Canada.

Enkin, M., Keirse, M., Renfrew, M. & Neilson, J. (1996). *A guide to effective care in pregnancy and childbirth*. Oxford University Press.

Fraser, A.M., Brochert, J.E. & Ward, R.H. (1995). Association of young maternal age with adverse reproductive outcomes. *New England journal of Medicine*, 332, 1113-18.

Hannah, M.E. et al. (2000). Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. *The Lancet*, 556, 1375-83.

Health Canada (2000). *Canadian Perinatal Health Report*. Ottawa, Ministry of Public Works and Government Services.

Huizinga, D., Loeder, R. & Thornberry, T.P. (1993). Longitudinal study of delinquency, drug use, sexual activity and pregnancy among children and youth in three cities. *Public Health Report*, 108, 90-96.

Leyland, A.H. & Boddy, F.A. (1990). Maternal age and outcome of pregnancy. *New England Journal of Medicine*, 323, 413-16.

MacDonald, D., Grant, A., Sheridan-Pereira, M. et al. (1985). The Dublin randomized controlled trial of intrapartum fetal heart rate monitoring. *American Journal of Obstetrics and Gynecology*, 52, 524-39.

Miller, H.S., Lesser, K.B. & Reed, K.I. (1996). Adolescence and very low birth weight infants: A disproportionate association. *Obstetrics & Gynecology*, 87, 83-88.

Prysak, M. & Lorenz, R.P. (1995). Pregnancy outcomes in nulliparous women 35 years and older. *Obstetrics & Gynecology*, 85, 65-70.

Royal College of Obstetricians and Gynecologists (RCOG). <http://www.rcog.org.uk>

Society of Obstetricians and Gynecologists of Canada (SOGC) (2002). Fetal health surveillance in labour. *SOGC Clinical Practice Guidelines*. <http://www.sogc.medical.org/SOGCnet/sogc_docs/common/guide/pdfs/ps112.pdf>

Society of Obstetricians and Gynecologists of Canada (SOGC) (1998). Joint position paper on rural maternity care. *SOGC Clinical Practice Guidelines*. <http://www.sogc.org/SOGCnet/sogc_docs/common/guide/pdfs/ps72.pdf>

Society of Obstetricians and Gynecologists of Canada (SOGC) (1997). Vaginal birth after caesarean section. *SOGC Clinical Practice Guidelines*. <http://www.sogc.medical.org/SOGCnet/sogc_docs/common/guide/pdfs/ps68.pdf>

Society of Obstetricians and Gynecologists of Canada (SOGC) (1996). Joint policy statement: Early discharge and length of stay for term birth. *SOGC Clinical Practice Guidelines*. <http://www.sogc.org/SOGCnet/sogc_docs/common/guide/pdfs/ps56.pdf>

World Health Organization (2001). *The optimal duration of exclusive breastfeeding*. Geneva, WHO.

APPENDIX 1
DEFINITIONS AND NOTES ON INDICATORS

Age
Age on date of event/age at last birth date preceding the event.

Antepartum
Before the onset of labour.

BC Unspecified (Place of Residence)
The postal code is unknown but it is known that the person is a resident of BC.

Birth weight
First weight of the fetus or newborn obtained after birth, expressed in grams. Low birth weight (LBW) birth weight is less than 2,500 grams. Very low birth weight (VLBW) - birth weight is less than 1,500 grams. (Excludes newborns with weight between 0 - 300 grams).

Breastfeeding at Discharge
Indicates the mother is breastfeeding the baby at discharge (includes expressed milk). If mom is breast and bottle-feeding (mixed feeding) at discharge it is reported as breastfeeding.

Care Provider for Delivery
Person who provides the actual, hands-on care for the delivery of the baby. The categories are: OB/GYN – includes obstetricians (or fellow) and obstetrical residents; Family physician – includes general practitioners, medical student intern (MSI) and family practice residents; Midwife - includes registered midwife and midwife trainee; Surgeon/other – includes surgeons, family members, ambulance attendants; Nurse/No Attendant/Unknown – includes nurse or if the patient delivers by herself and no one is in attendance; or Unknown – indicates there was no documentation.

Count of cases
The most basic measure is a simple count of cases or conditions of interest and is often expressed as a variable. Such figures are important for strategic planning in health care systems, especially in terms of resource allocation. Counts of cases provide an idea of the number of people who will require a specific treatment, intervention or service. The definition of a variable is any attribute, phenomenon or event that can have different values but is expressed as a single data element:

- Yes, no, not applicable
- A number, e.g. age

Caesarean Section (C/Section) Method of Delivery
A delivery involving the surgical incision of the abdomen and uterine walls.

Electronic Fetal Monitoring (EFM)
Mother received external or internal electronic fetal heart monitoring during 1st or 2nd stage of labour. May include patients with electronic fetal monitoring during latent phase of labour. Mothers that did not go into labour are classified as "Not Applicable".

Episiotomy
A surgical incision into the perineum and vagina at the time of birth. If it is unknown if mother received an episiotomy, this case would be included in the category "No".

Fertility Rate
The number of live births occurring in a given time period divided by the number of women of child bearing age for Residents of a geographic area. BC rates are per 1,000 women aged 15 to 44.

Frequency
Number of events or cases in a category.

Health Authority (HA)/Health Service Delivery Areas (HSDA) – Delivery
Refers to the Health Authority or Health Service Delivery Area in which the patient delivered. The BC Ministry of Health has defined six macro level administrative boundaries called health authorities, which govern the manner in which health care services are delivered within the province of BC. Health Authorities are further divided into sixteen Health Service Delivery areas. HSDAs are micro level geographic boundaries. There may be more than one institution in a HA or HSDA.

Health Authority (HA)/ Health Service Delivery Areas (HSDA) – Residence
Refers to the Health Authority or Health Service Delivery Area in which the patient resided at the time of delivery. Statistics relating to the client's residence are determined via the Translation Master File (TMF). The TMF file is a comprehensive demographic mapping file, which consists of valid BC postal codes and their associated Health Service Delivery Areas (HSDA) and Health Authorities (HA). The geographic area to which a postal code belongs seldom changes over time but in cases where the postal code has changed, appropriate amendments have been made to reflect that postal code's associated HSDA for that particular year.

Home Birth
Birth that occurred at home and mother was not admitted to an inpatient facility within 24 hours of the birth. The primary care provider was a BC registered midwife.

Induction of Labour
Patient who received instrumental or pharmacological assistance to promote labour, prior to the onset of first stage of labour. A patient may be induced by any of the following methods: Artificial Rupture of Membranes (ARM), Oxytocin, Prostaglandin or other methodology. A failed medical induction is classified as an induction. Induction is categorized as "unknown" if it is unknown how the patient's labour was initiated.

Intrapartum (IP)
The period between the onset of the first stage of labour and the delivery of the placenta.

Live Birth
The complete expulsion or extraction from the mother, irrespective of the duration of the pregnancy, of a fetus in which there is breathing, beating of the heart, pulsation of the umbilical cord or unmistakable movement of voluntary muscle, whether or not the umbilical cord has been cut or the placenta is attached.

Maternal Smoking
There is documentation that the patient smoked during the current pregnancy. If a patient smoked at any time during pregnancy, even if she quit during the pregnancy, she is categorized as a smoker in the current pregnancy.

Multiple Birth
Birth in which more than one infant is born, including live births and stillbirths.

Multiple Pregnancy
A pregnancy with more than one fetus.

Non-resident
The woman delivers in British Columbia but is not a resident of British Columbia. She may be from out of province or out of country.

Nulliparc
A woman who has never produced a viable offspring (500 grams birth weight or 20 weeks gestation).

Parity ≥ 1
The condition of having carried a previous pregnancy to a point of viability (500 grams birth weight or 20 weeks gestation) regardless of outcome.

Postpartum LOS – Vaginal/ Caesarean Section
Length of hospital stay calculated from delivery date/time to discharge date/time of mother, stratified into vaginal and caesarean births. This category excludes those who delivered at home with a Registered Midwife in attendance.

Proportion
A proportion is a measure of the number of persons having a specific condition or intervention at a designated time. It is defined as the number of existing cases divided by total population from which those arose. It is reported as a percent, for example, the percent of women giving birth in a specific health region, of all women in the region.

Rate
"A rate is a measure of the frequency of occurrence of a phenomenon. In epidemiology, demography and vital statistics, a rate is an expression of the frequency with which an event occurs in a defined population; the use of rates rather than raw numbers is essential for comparison of experience between populations at different times, different places or among different classes of persons. The components of a rate are the numerator, the denominator, the specified time in which events occur and usually a multiplier, a power of 10, which converts the rate from an awkward fraction to a decimal or whole number".
(A Dictionary of Epidemiology, 3rd Edition. John M. Last, Oxford University Press, 1995)

Early Neonatal Mortality Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Number of deaths among infants less than 7 days during a given period x 1000}}{\text{Total live births during that period}}$$

Infant Mortality Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Number of deaths among infants under 1 year during a given period x 1000}}{\text{Total live births during that period}}$$

Late Neonatal Mortality Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Number of deaths among infants between 7-27 days during a given period x 1000}}{\text{Total live births during that period}}$$

Neonatal Mortality Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Number of deaths among infants less than 28 days during a given period x 1000}}{\text{Total live births during that period}}$$

Neonatal Survival Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Number of total live births - total neonatal deaths x 1000}}{\text{Total births during that period}}$$

Perinatal Mortality Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Total stillbirths + total early neonatal deaths during a given period x 1000}}{\text{Total births during that period}}$$

Post Neonatal Mortality Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Number of deaths among infants between 28 days to 1 year during a given period x 1000}}{\text{Total live births during that period}}$$

Stillbirth Rate
May be expressed mathematically as the formula:

$$= \frac{\text{Number of stillbirths during a given period x 1000}}{\text{Total births during that period}}$$

Stillbirth
The complete expulsion or extraction from the maternal body after at least 20 weeks of gestation or after attaining a weight of at least 500 grams of a fetus in which at birth, there is no breathing, beating heart, pulsation of the umbilical cord or unmistakable movement of voluntary muscle.

Total Births
All live births and stillbirths in the province of British Columbia for the given year.

Vaginal Method of Delivery
The complete separation of an infant from the maternal body via the vaginal canal.

APPENDIX 2
BRITISH COLUMBIA PERINATAL DATABASE - INFORMATION RESOURCES

There are multiple reports available and methods to obtain BCPDR data in order to conduct analysis on perinatal processes and outcomes in British Columbia:

- **Hospital Reports** – these are hospital-specific, pre-programmed reports, which can be run at all locations where the data base is installed. Other participating sites, where the database is not installed, may obtain their specific hospital reports from the BCPDR central office.

- **Ad hoc Reports** – the database allows for user-defined queries to be run in order to answer specific requests. Queries can be developed and run at the hospital installation sites or at the Provincial Registry.

- **BC Facility Comparison Reports** – these reports are created annually and allow the individual facility to compare and bench mark selected maternal and newborn events and outcomes with provincial and similarly sized sites.

- **Perinatal Database Reporting Tool** - In 2002 the Perinatal Reporting Tool (PRT) was released by the BCRCP. The Perinatal Reporting Tool is an interactive CD, which has been designed to allow health care providers, administrators and data analysts access to summarized data sets extracted from the BC Perinatal Database Registry. The PRT allows for population based and comparative reporting between institutions, Health Authorities and against provincial totals for some of the most common and/or important practices and health outcomes related to perinatal care. The PRT is a user-friendly tool and permits users to conduct their own analytical requests. A second version of the Perinatal Reporting Tool, with enhanced functionality and updated data sets, was released in September 2003.

- **Specific Requests for Data** – Clients, health care professionals, researchers etc. may request specific data via the web at <http://www.bcrcp.ca >.
See Appendix 7, page 59.

APPENDIX 3
HEALTH AUTHORITIES, HEALTH SERVICE DELIVERY AREAS AND INSTITUTIONS

Health Authority	Health Services Delivery Area	Institution Name
Fraser	Fraser East	Chilliwack General Hospital Fraser Canyon Hospital Matsqui-Sumas-Abbotsford General Hospital Mission Memorial Hospital
	Fraser North	Burnaby Hospital Eagle Ridge Hospital Ridge Meadows Hospital & Health Care Centre Royal Columbian Hospital
	South Fraser	Delta Hospital Langley Memorial Hospital Peace Arch District Hospital Surrey Memorial Hospital
Interior	East Kootenay	Creston Valley Hospital East Kootenay Regional Hospital (Cranbrook Regional Hospital) Fernie District Hospital Golden and District General Hospital Invermere and District Hospital Kimberley and District Hospital Sparwood General Hospital
	Kootenay Boundary	Arrow Lakes Hospital Boundary Hospital Castlegar and District Hospital Kootenay Boundary Regional Hospital (Trail Regional Hospital) Kootenay Lake District Hospital Slocan Community Hospital and Health Care Centre Victorian Hospital Of Kaslo
	Okanagan	Kelowna General Hospital Penticton Regional Hospital Princeton General Hospital South Okanagan General Hospital Summerland Hospital Vernon Jubilee Hospital
	Thompson Cariboo Shuswap	100 Mile General District Hospital Ashcroft and District General Hospital Cariboo Memorial Hospital Dr. Helmcken Memorial Hospital Lillooet District Hospital Nicola Valley General Hospital Queen Victoria Hospital Royal Inland Hospital Shuswap Lake General Hospital St. Bartholomew's Hospital

Health Authority	Health Services Delivery Area	Institution Name
Northern Health	Northeast	Chetwynd General Hospital Dawson Creek and District Hospital Fort Nelson General Hospital Fort St. John General Hospital
	Northern Interior	G.R. Baker Memorial Hospital Lakes District Hospital And Health Centre MacKenzie and District Hospital McBride and District Hospital Prince George Regional Hospital St. John Hospital Stuart Lake Hospital
	Northwest	Bulkley Valley District Hospital Kitimat General Hospital Mills Memorial Hospital Prince Rupert Regional Hospital Queen Charlotte Islands General Hospital Stewart General Hospital Wrinch Memorial Hospital
Vancouver Coastal	North Shore/Coast Garibaldi	Bella Coola General Hospital Lions Gate Hospital Powell River General Hospital R.W. Large Memorial Hospital Squamish General Hospital St. Mary's Hospital
	Richmond	Richmond Health Services
	Vancouver	St. Paul's Hospital Vancouver General Hospital
Vancouver Island	Central Vancouver Island	Ladysmith and District General Hospital Nanaimo Regional General Hospital St. Joseph's General Hospital Tofino General Hospital West Coast General Hospital
	North Vancouver Island	Campbell River and District General Hospital Port Hardy Hospital Port McNeil and District Hospital Cormorant Island Health Centre (St. George's Hospital)
	South Vancouver Island	Cowichan District Hospital Lady Minto Gulf Islands Hospital Saanich Peninsula Hospital Victoria General Hospital
PHSA		Children's and Women's Health Centre of BC

APPENDIX 4

TRENDS OF TOTAL FERTILITY RATES
BRITISH COLUMBIA, 1950 - 2002

Year	Total Fertility Rate	Live Births	Year	Total Fertility Rate	Live Births
1950	3,074	27,116	1977	1,636	36,691
1951	3,201	28,077	1978	1,620	37,231
1952	3,327	29,827	1979	1,721	38,432
1953	3,542	31,746	1980	1,716	40,104
1954	3,656	32,946	1981	1,718	41,679
1955	3,748	34,138	1982	1,749	42,942
1956	3,875	36,241	1983	1,751	43,047
1957	3,921	38,744	1984	1,781	44,040
1958	3,900	39,577	1985	1,642	42,989
1959	3,958	39,971	1986	1,602	41,845
1960	3,949	40,116	1987	1,598	41,655
1961	3,785	38,591	1988	1,636	42,913
1962	3,709	38,128	1989	1,638	43,585
1963	3,564	37,478	1990	1,673	45,333
1964	3,284	35,897	1991	1,653	45,308
1965	2,710	33,669	1992	1,642	46,048
1966	2,442	32,502	1993	1,636	45,931
1967	2,307	32,899	1994	1,638	46,850
1968	2,228	33,687	1995	1,604	46,702
1969	2,223	35,383	1996	1,540	45,955
1970	2,185	36,861	1997	1,472	44,399
1971	1,994	34,852	1998	1,436	42,863
1972	1,890	34,563	1999	1,408	41,746
1973	1,751	34,352	2000	1,374	40,491
1974	1,735	35,450	2001	1,371	40,392
1975	1,682	36,281	2002	1,353	39,893
1976	1,618	35,848			

Note: Total Fertility Rate - Sum of age-specific fertility rates multiplied by the number of years in each age group (see glossary for definition). Rates per 1,000 women age 15 to 44. Non-residents are excluded.

Source: BC Vital Statistics Agency

LIVE BIRTHS, DEATHS, MARRIAGES AND STILLBIRTHS
BRITISH COLUMBIA, 1950 - 2002

Year	Mid-Year Population	Live Births		Deaths		Marriages		Stillbirths	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate
1950	1,137,000	27,116	23.8	11,581	10.2	11,110	9.8	369	13.4
1951	1,165,210	28,077	24.1	11,638	10.0	11,272	9.7	365	12.8
1952	1,205,000	29,827	24.8	12,080	10.0	11,081	9.2	375	12.4
1953	1,248,000	31,746	25.4	12,218	9.8	11,298	9.1	375	11.7
1954	1,295,000	32,946	25.4	12,414	9.6	10,991	8.5	373	11.2
1955	1,342,000	34,138	25.4	12,816	9.5	11,011	8.2	381	11.0
1956	1,398,464	36,241	25.9	13,415	9.6	11,950	8.5	413	11.3
1957	1,482,000	38,744	26.1	13,711	9.3	12,620	8.5	422	10.8
1958	1,538,000	39,577	25.7	13,741	8.9	12,094	7.9	414	10.4
1959	1,567,000	39,971	25.5	14,336	9.1	11,910	7.6	404	10.0
1960	1,602,000	40,116	25.0	14,696	9.2	11,203	7.0	437	10.8
1961	1,629,100	38,591	23.7	14,403	8.8	10,935	6.7	410	10.5
1962	1,660,000	38,128	23.0	14,912	9.0	11,196	6.7	377	9.8
1963	1,699,000	37,478	22.1	15,029	8.8	11,677	6.9	476	12.5
1964	1,745,000	35,897	20.6	16,051	9.2	12,158	7.0	485	13.3
1965	1,797,000	33,669	18.7	15,784	8.8	13,639	7.6	447	13.1
1966	1,873,674	32,502	17.3	16,290	8.7	14,682	7.8	409	12.4
1967	1,945,000	32,899	16.9	16,170	8.3	16,026	8.2	422	12.7
1968	2,003,000	33,687	16.8	16,828	8.4	16,914	8.4	433	12.7
1969	2,060,000	35,383	17.2	17,377	8.4	18,284	8.9	468	13.1
1970	2,128,000	36,861	17.3	17,020	8.0	20,020	9.4	407	10.9
1971	2,184,620	34,852	16.0	17,783	8.1	20,389	9.3	442	12.5
1972	2,241,400	34,563	15.4	18,021	8.0	20,659	9.2	356	10.2
1973	2,302,400	34,352	14.9	18,095	7.9	21,303	9.3	339	9.8
1974	2,375,700	35,450	14.9	19,177	8.1	21,734	9.1	364	10.2
1975	2,433,200	36,281	14.9	19,151	7.9	21,824	9.0	414	11.3
1976	2,466,610	35,848	14.5	18,788	7.6	21,536	8.7	361	10.0
1977	2,493,800	36,691	14.7	18,021	7.2	21,156	8.5	330	8.9
1978	2,530,100	37,231	14.7	19,057	7.5	21,388	8.5	331	8.8
1979	2,571,200	38,432	14.9	19,204	7.5	22,087	8.6	313	8.1
1980	2,640,100	40,104	15.2	19,371	7.3	23,830	9.0	316	7.8
1981	2,744,470	41,679	15.2	19,857	7.2	24,694	9.0	371	8.8
1982	2,787,700	42,942	15.4	20,704	7.4	23,831	8.5	317	7.3
1983	2,813,800	43,047	15.3	19,895	7.1	23,692	8.4	310	7.1
1984	2,847,700	44,040	15.5	20,781	7.3	23,394	8.2	303	6.8
1985	2,990,000	42,989	14.4	21,131	7.1	22,270	7.4	333	7.7
1986	3,020,400	41,845	13.9	21,006	7.0	21,819	7.2	309	7.3
1987	3,064,600	41,655	13.6	21,619	7.1	23,377	7.6	297	7.1
1988	3,128,200	42,913	13.7	22,361	7.1	24,469	7.8	292	6.8
1989	3,209,200	43,585	13.6	22,780	7.1	25,154	7.8	319	7.3
1990	3,300,100	45,333	13.7	23,398	7.1	25,185	7.6	292	6.4
1991	3,379,800	45,308	13.4	23,794	7.0	23,648	7.0	306	6.7
1992	3,476,868	46,048	13.2	24,445	7.0	23,756	6.8	301	6.5
1993	3,571,524	45,931	12.9	25,601	7.2	23,473	6.6	286	6.2
1994	3,681,750	46,850	12.7	25,824	7.0	23,763	6.5	312	6.6
1995	3,784,008	46,702	12.3	26,221	6.9	23,629	6.2	350	7.4
1996	3,882,043	45,955	11.8	27,388	7.1	22,882	5.9	292	6.3
1997	3,959,698	44,399	11.2	27,260	6.9	21,881	5.5	335	7.5
1998	3,997,087	42,865	10.7	27,806	7.0	21,771	5.5	278	6.4
1999	4,028,072	41,743	10.4	27,859	6.9	21,625	5.4	294	7.0
2000	4,058,833	40,494	10.0	27,300	6.7	22,094	5.4	281	6.9
2001	4,095,934	40,376	9.9	28,164	6.9	20,554	5.0	281	6.9
2002	4,141,272	39,893	9.6	28,686	6.9	21,245	5.1	296	7.4

Note: Rates for live births, deaths and marriages are crude rates per 1,000 population.

Stillbirth rates are per 1,000 total births (live births + stillbirths).

The definition of a stillbirth was revised in 1963 and 1986.

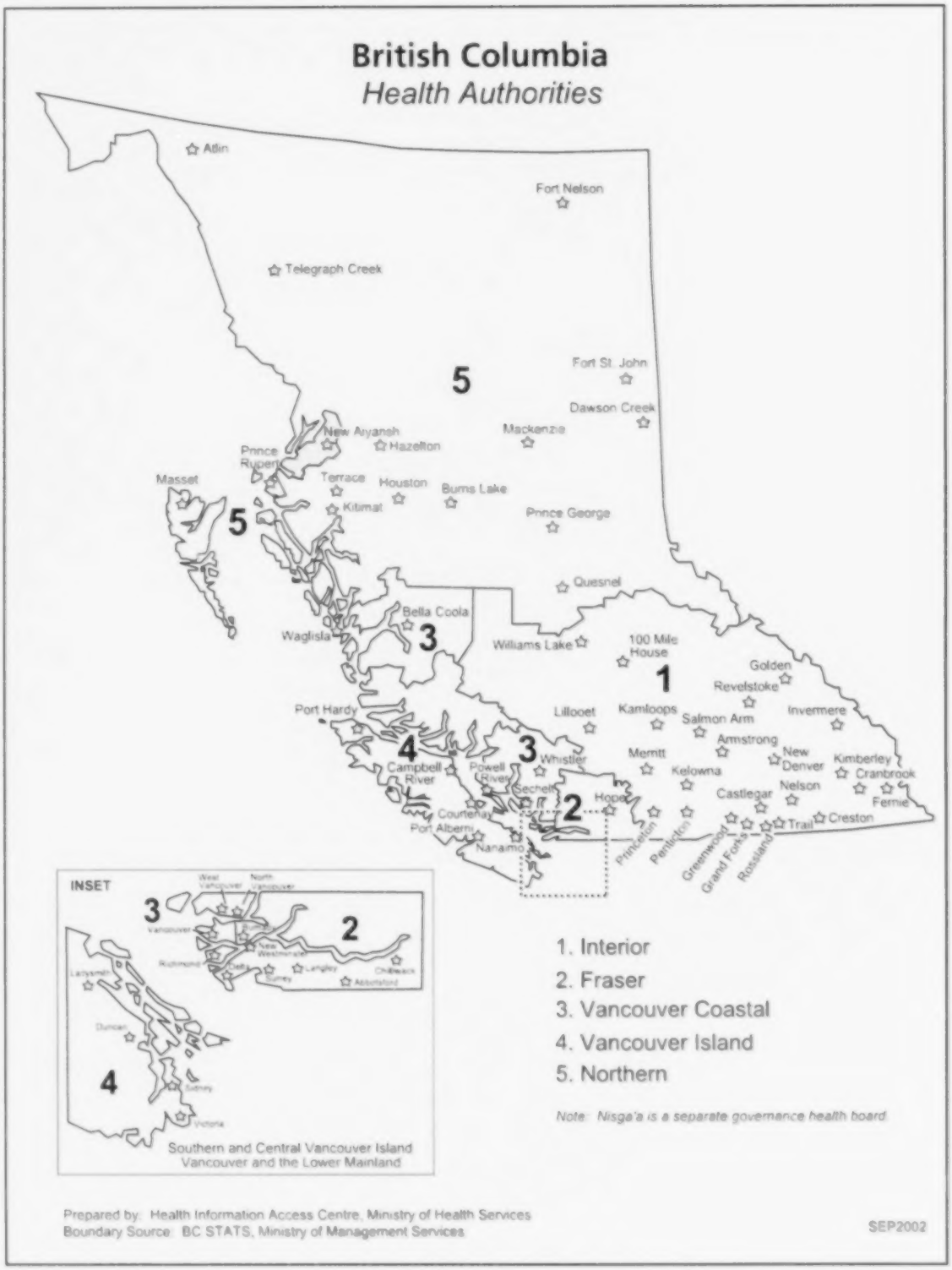
Population information from BC STATS. Ministry of Management Services.

Information includes late registrations and amendments.

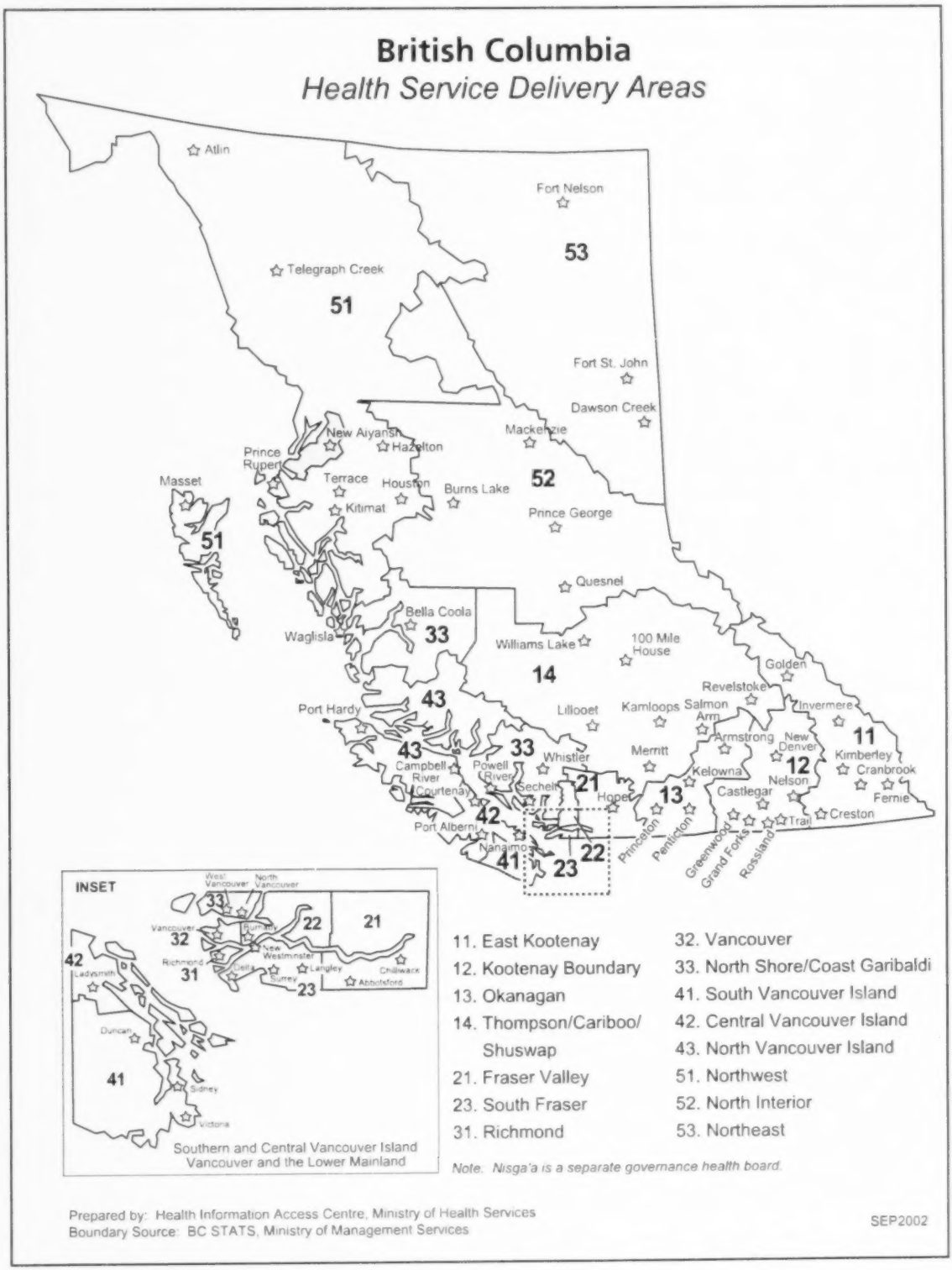
Gender unknown included. Non-residents are excluded from all data except marriages.

Source: BC Vital Statistics Agency Annual Report 2002

APPENDIX 5
MAP - Health Authorities



MAP - Health Service Delivery Areas



APPENDIX 6
OTHER RELEVANT SOURCES OF INFORMATION

Below is a list of web sites where you can search for other relevant information on perinatal health information and statistics at the provincial, national and at the international level.

Provincial

BC Ministry of Health Services: <http://www.hlth.gov.bc.ca>

Niday Perinatal Database (Eastern Ontario): <http://www.pppeso.on.ca>

The Northern & Central Alberta Perinatal Outreach Program: <http://www.ncapop.ca>

PEI Reproductive Care Perinatal Database Report: <http://www.gov.pe.ca>

Reproductive Care Program of Nova Scotia: <http://rcp.nshealth.ca >

National

Canadian Institute for Health Information: <http://www.cihi.ca>

Canadian Institute of Child Health: <http://www.cich.ca>

Health Canada: <http://www.hc-sc.gc.ca>

Statistics Canada: <http://www.statcan.gc.ca>

Vital Statistics (Can): <http://www.statcan.ca>

International

Centers for Disease Control and Promotion (CDC): <http://www.cdc.gov>

Medline Plus – Health Information: <http://www.nlm.nih.gov/medlineplus/healthstatistics.html>

National Institute of Child Health & Human Development (US): <http://www.nichd.nih.gov>

National Perinatal Association (US): <http://www.nationalperinatal.org>

National Perinatal Epidemiology Unit (NPEU): <http://www.npeu.ox.ac.uk>

Statistical Resources on Women and Gender: <http://www.library.wisc.edu/libraries>

Vermont Oxford Network: <http://www.vtoxford.org>

World Health Organization (WHO): <http://www.who.int>

APPENDIX 7

BRITISH COLUMBIA PERINATAL DATABASE REGISTRY
INFORMATION REQUEST FORM

PDR Request # _____

Requester Information

Name: _____ Title: _____

Organization: _____

Address: _____

Telephone #: _____ Fax: _____

Email Address: _____ Signature: _____

Data Request

Purpose: (Briefly describe the purpose for which data are being requested)

_____

_____

_____

_____

Data elements required: (list of fields or queries)

_____

_____

_____

_____

Date range required: _____ (or) From: _____ To: _____

Frequency of data request:

❒ One time only ❒ Annually ❒ Other: _____

Date required by: _____

Special Instructions: _____